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Site LF004 Landfill Remedial Action

BCT Conference Call
17 October 2019

Battle Ready…Built Right!

LF004 Recent and Upcoming Activities

- Post remediation soil gas sampling is complete
- Draft annual landfill inspection report under regulatory review since 17 Jun 2019
- Annual landfill inspection scheduled for 23 Oct 2019
- Planning in progress for decommissioning of SVE and IWAS treatment systems
- Semi-annual PDB sampling scheduled for Oct/Nov 2019

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Site FT002
Fire Training Area Remedial Action

BCT Conference Call
17 October 2019

Site FT002 Update

- AF approved keeping the DEUR in place Nov 2018
- AF will prepare Explanation of Significant Differences (ESD) document to add the land use control to the ROD
- Responses to EPA and ADEQ comments on Remedial Action Completion Report under final AF review. Report is being revised in accordance with the responses to comments.
- If necessary, a technical conference call with regulatory agencies to resolve comments can be scheduled

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Site SS017
Old Pesticide/Paint Shop

BCT Conference Call
19 September 2019

Site SS017 Groundwater Monitoring Update Path Forward

- Q3 (Aug) 2018 data summary report submitted 12 Apr 2019 is under regulatory review
- Annual (Nov) 2018 groundwater report submitted 18 Apr 2019. Reissued hard copy reports on 30 Apr 2019. Report is under regulatory review.
- Q3 2019 quarterly sampling completed in Aug 2019. Preliminary results on next slide
- Q2 (Jun) 2019 data summary report under AF review.

Site SS017 MW02
August 2019
Preliminary Groundwater Monitoring Summary

- **Dieldrin exceeded the EPA Health Advisory of 0.2 µg/L in MW02 at (0.380 µg/L) dup (0.330 µg/L)(previous sample 0.087 µg/L)**

- **Aldrin was detected at a concentration of 0.0009 J µg/L in the duplicate sample but not detected in the original SS017-MW02 sample. The results were below the EPA RSL of 0.057 µg/L**

- **Chlordane exceeded the EPA RSL of 0.02 µg/L but not MCL of 2.0 µg/L : (0.058 µg/L) dup (0.055 µg/L)**

Site SS017 MW02
August 2019
Preliminary Groundwater Monitoring Summary

- **Endrin was detected at concentrations of 0.003 and 0.0028 (duplicate) µg/L. The results were below the EPA RSL of 0.046 µg/L.**
- **4,4'-DDD was detected at a concentration of 0.0012 J µg/L and not detected in the duplicated sample. The results were below the EPA RSL of 0.057 µg/L.**
- **4,4'-DDE was detected at concentrations of 0.00098 J and 0.00082 J (duplicate) µg/L. The results were below the EPA RSL of 0.046 µg/L.**

Parcel K-1-2 Property Transfer

- Draft FOST and SEBS issued 30 November 2018
- ADEQ comments received 3 and 7 January 2019
- Draft final FOST and SEBS including RTC to ADEQ comments posted for public comment. Comment period end 25 Mar 2019; no comments received.
- EPA comments received 11 Mar 2019
- Draft final FOST and SEBS issued to ASU for coordination
- FOST (final version in track changes responding to EPA comments) was issued via email for regulatory concurrence 24 Jul 2019 with follow up email 9 Aug 2019
- FOST clean copy with all revisions, responses to comment and ADEQ requested changes issued 15 Oct 2019
- Final FOST to be routed for AF signature after regulatory concurrence
- Draft DEUR and assignment package to be prepared

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Site ST035
Former Building 760

BCT Conference Call
17 October 2019

ST035 Update

- SVE system and enclosure decommissioning completed in July. ASU has indicated that the concrete pad, walls, and fencing will be retained for use by facilities management.
- Well abandonment activities began on 12 Oct 2019

Partial Deletion

BCT Conference Call
17 October 2019

PARTIAL DELETION UPDATE

- Draft table and figure submitted for regulatory review on 29 Sep 2014
- Comments received by ADEQ during Sep 2014 BCT meeting addressed in follow on email. No comments received from EPA.
- Deletion on hold during SS017 and ST012 informal disputes
- Final deletion tables and figure ready for submittal and provided to BCT in April 2019 BCT meeting
- Draft NOIPD AF review complete on 15 Oct 2019
- Draft NOIPD submittal for ADEQ/EPA review scheduled for Oct 2019

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Site ST012
Former Liquid Fuel Storage Area

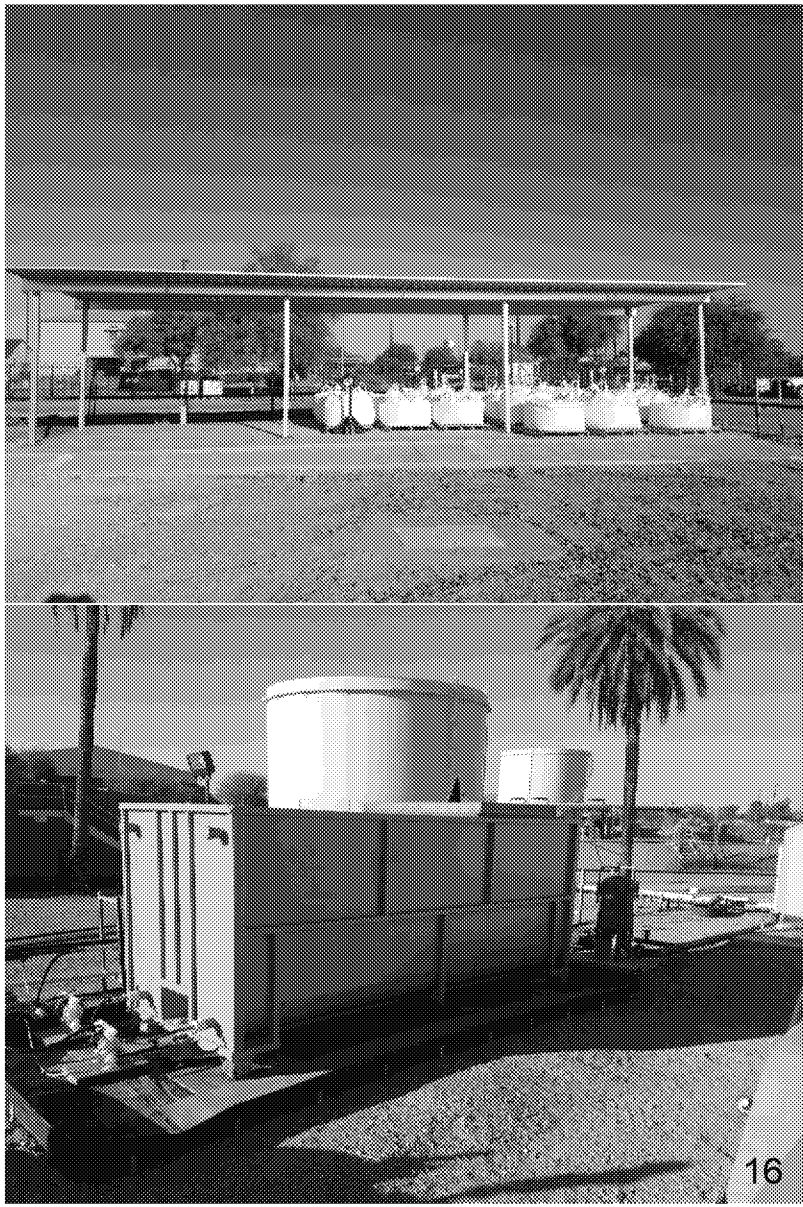
BCT Conference Call
17 October 2019

Site ST012 Outline

- Summary of activities since Sep BCT call
- Update on SVE system (JP-4 equivalent of methane)
- LNAPL removal update
- Updated on benzene and sulfate concentrations
- Pilot study extraction/injection update
- Path forward

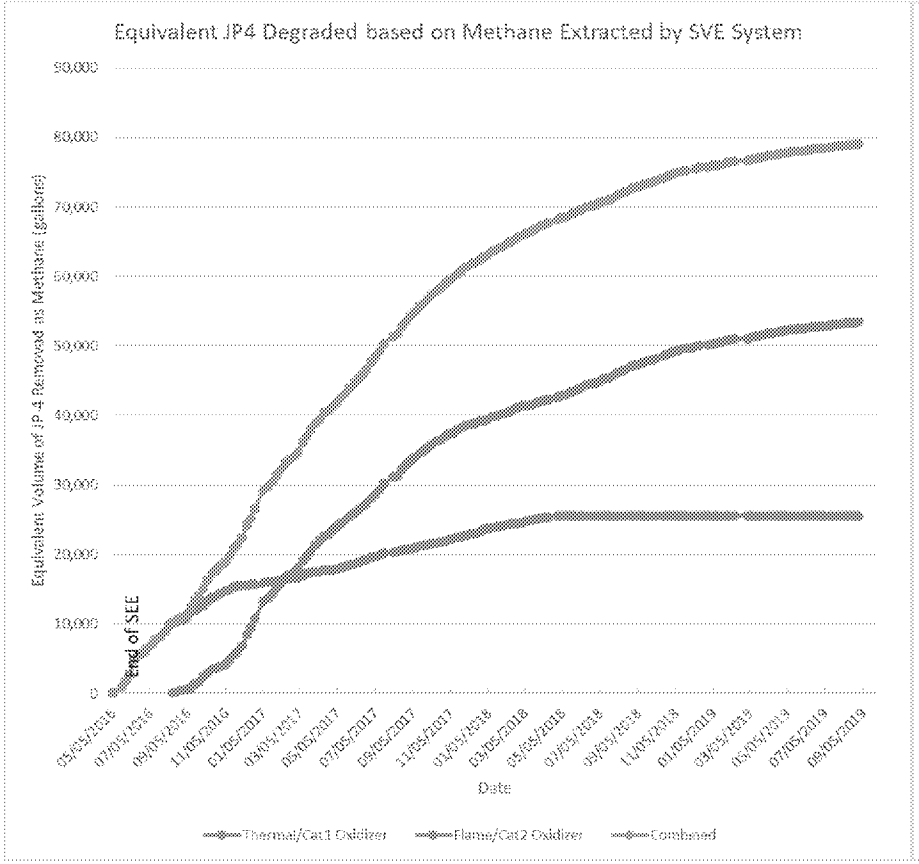
Site ST012 Activities Since Sep

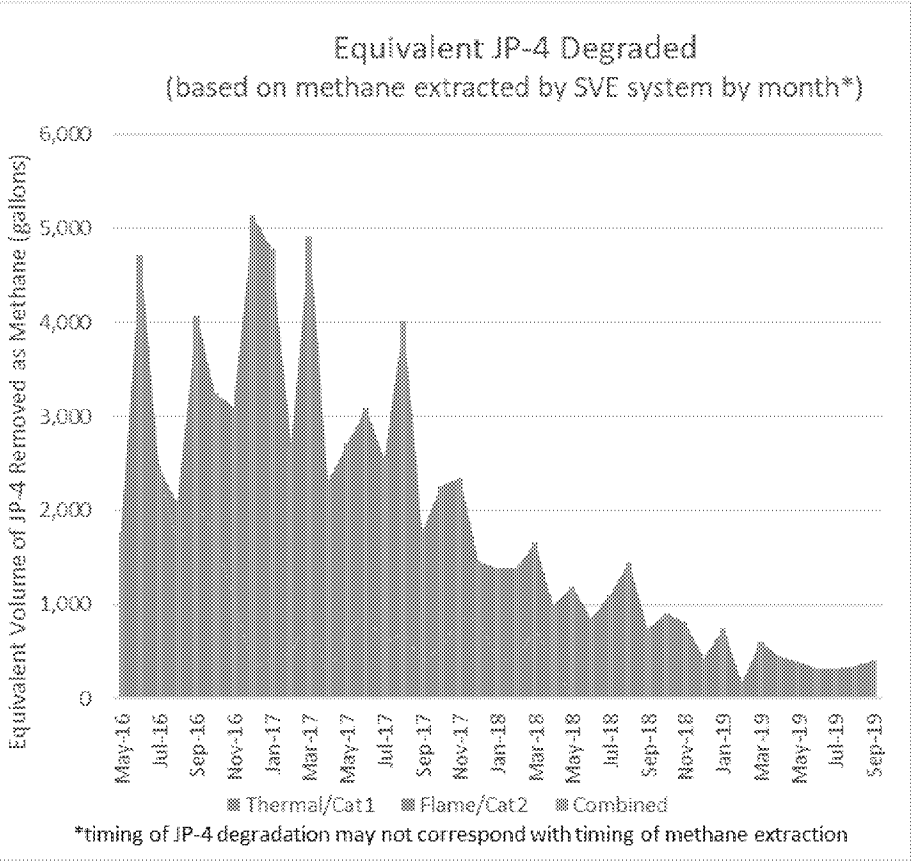
- **Continued SVE operation**
- **LNAPL screening in select wells**
- **Operation of Extraction and Treatment**
  - **Pump Maintenance**
    - Extraction pumps in LSZ12 and LSZ43 repaired
    - LSZ12 pump failed – failed wiring suspected
    - Evaluating pump options for potential extraction at W36 during subphase 4
  - **Shut down extraction at LSZ09 and CZ18**
    - LSZ37 not shut down yet based on decreasing or inconsistent sulfate concentration
  - **Carbon Vessel Pressure**
    - Adjusted chemical treatment has improved biological control
- **Sodium sulfate injections (detail on later slides)**



JP-4 Degradation Based on Methane Removed with SVE

Site ST012 SVE System Equivalent JP-4 Degradation Based on Methane Removed

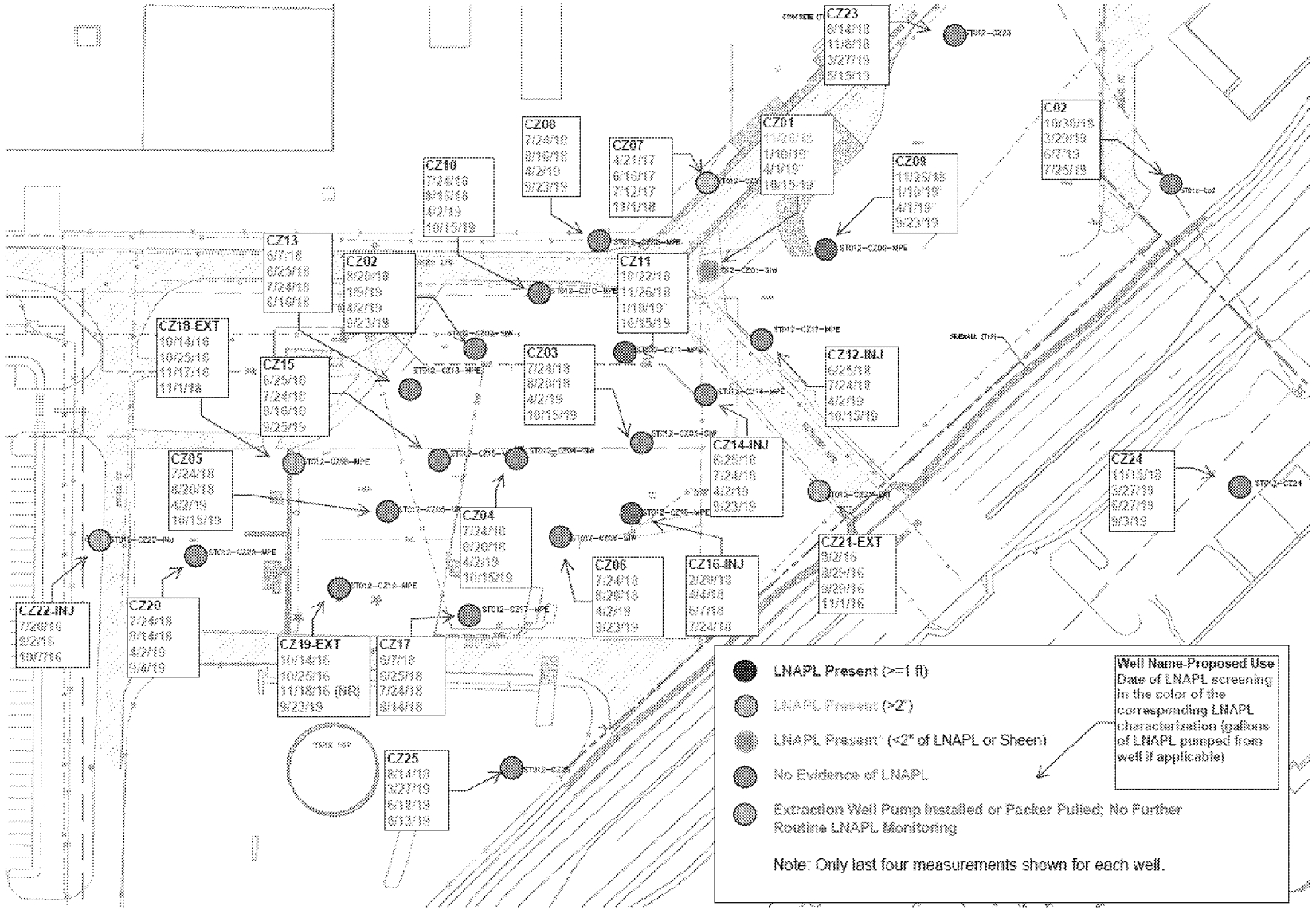




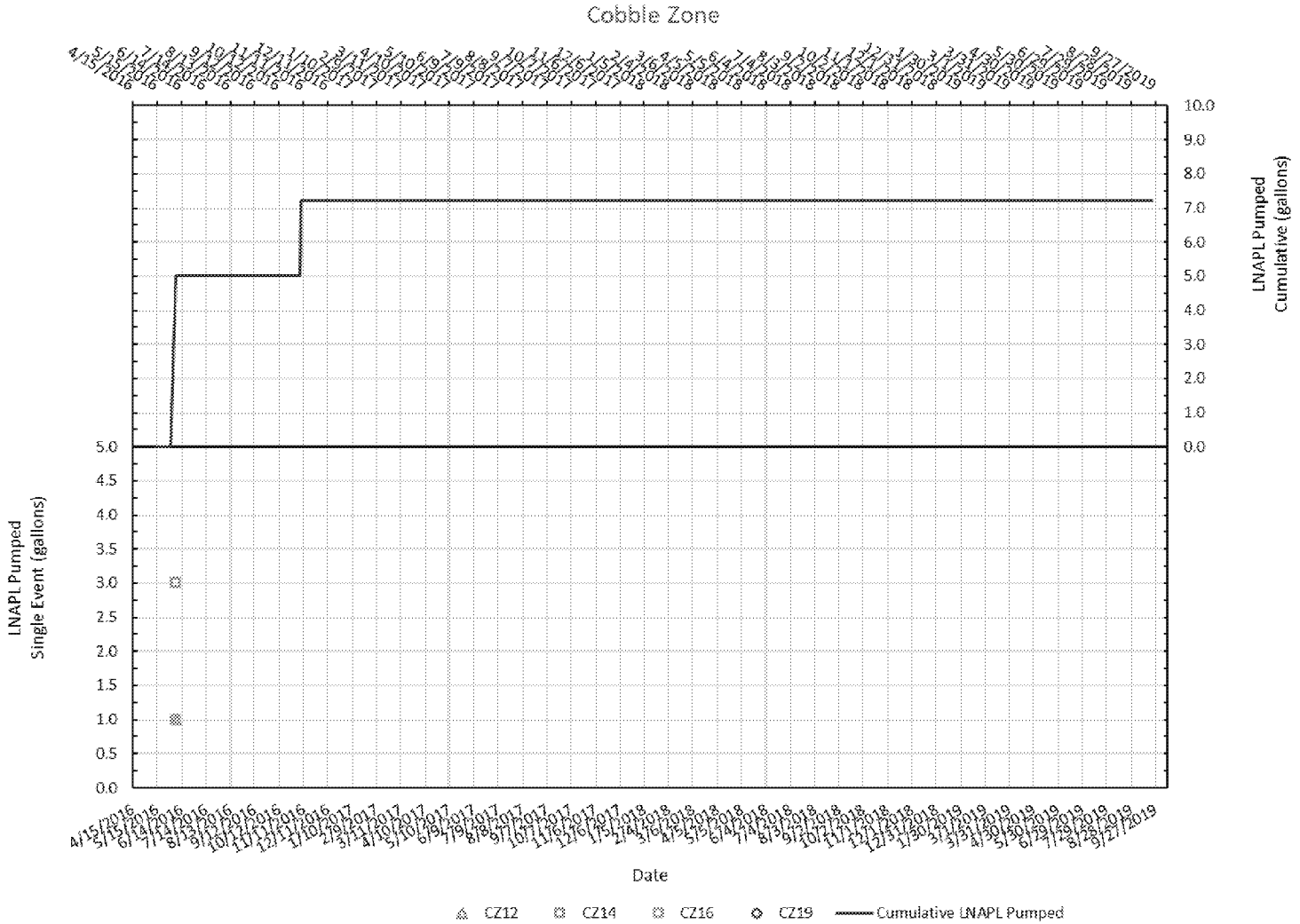
- Estimates through 26 Sep 2019
- Estimated JP-4 degradation as methane is in addition to JP-4 removal reported for SVE
- Thermal/Cat1 oxidizer changed from SVE to groundwater treatment end of Apr (low methane concentrations recently observed but attributed to vapor bleed through closed valve from SVE)
- Flame oxidizer treating combined SVE and air stripper intermittently in Nov 2018 – Jan 2019
- Flame oxidizer replaced by catalytic oxidizer (Cat2) 7 Feb to 26 Feb 2019

LNAPL Removal Update (through 15 Oct)

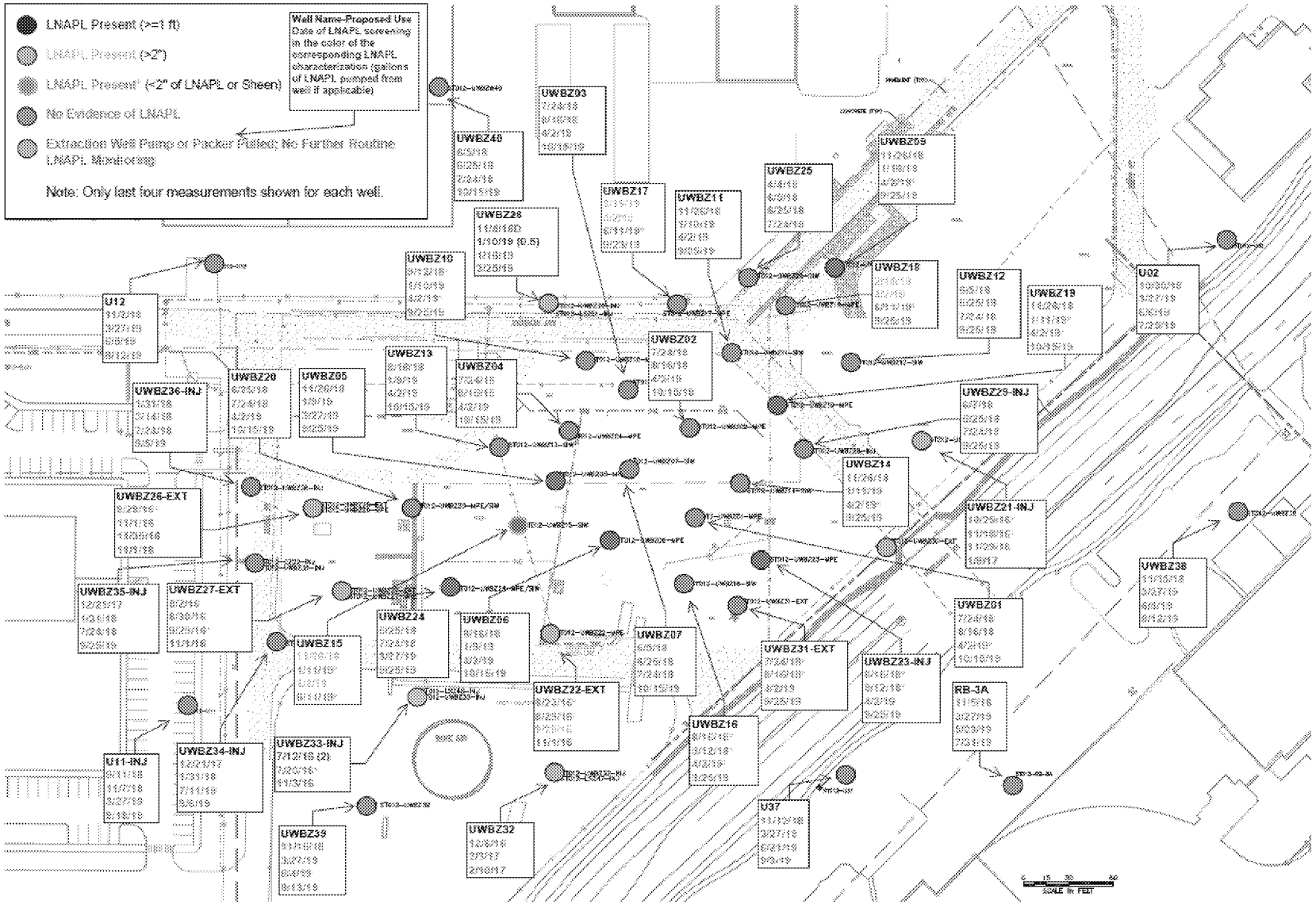
LNAPL Monitoring/Removal Status
Cobble Zone



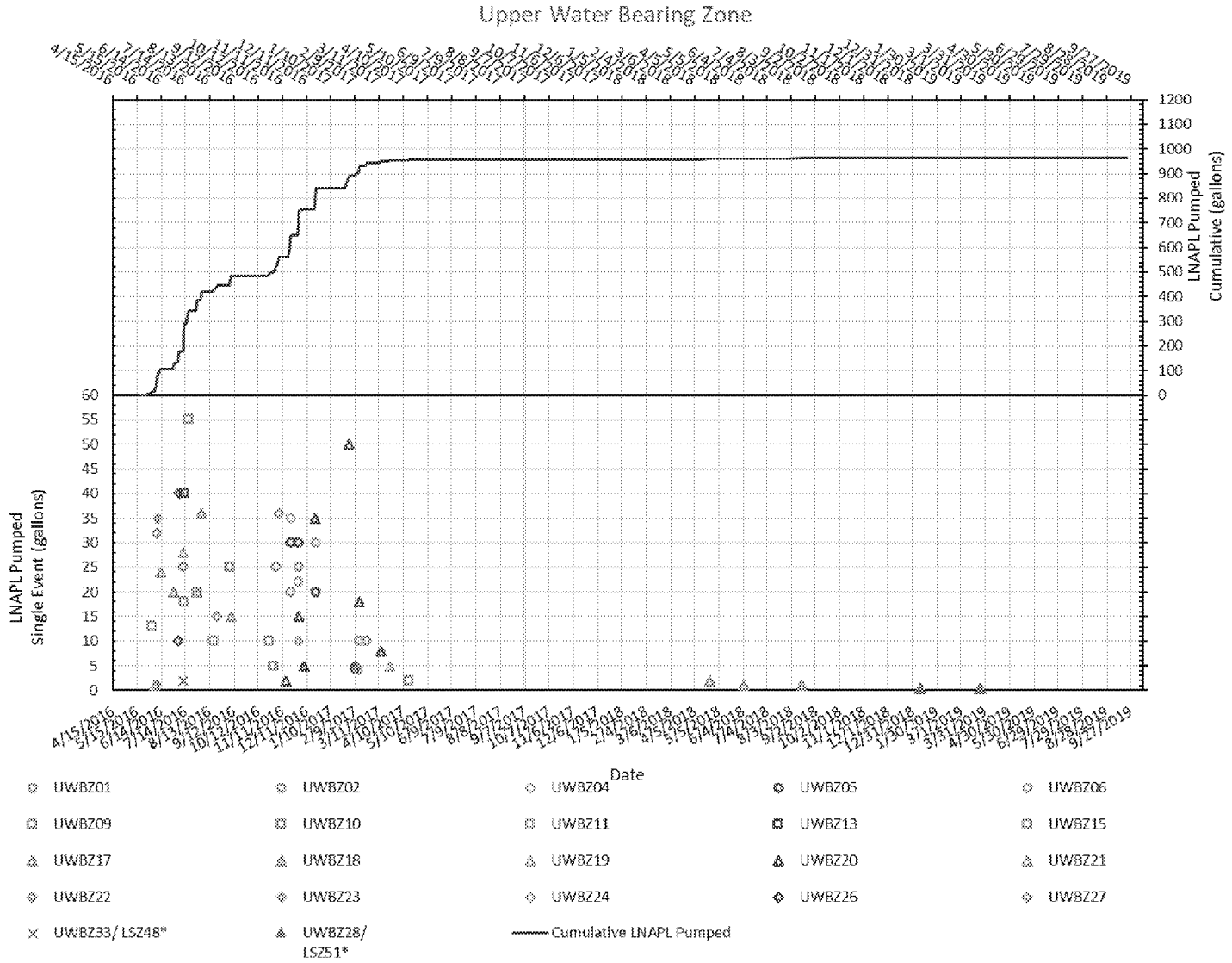
LNAPL Monitoring/Removal Status
Cobble Zone



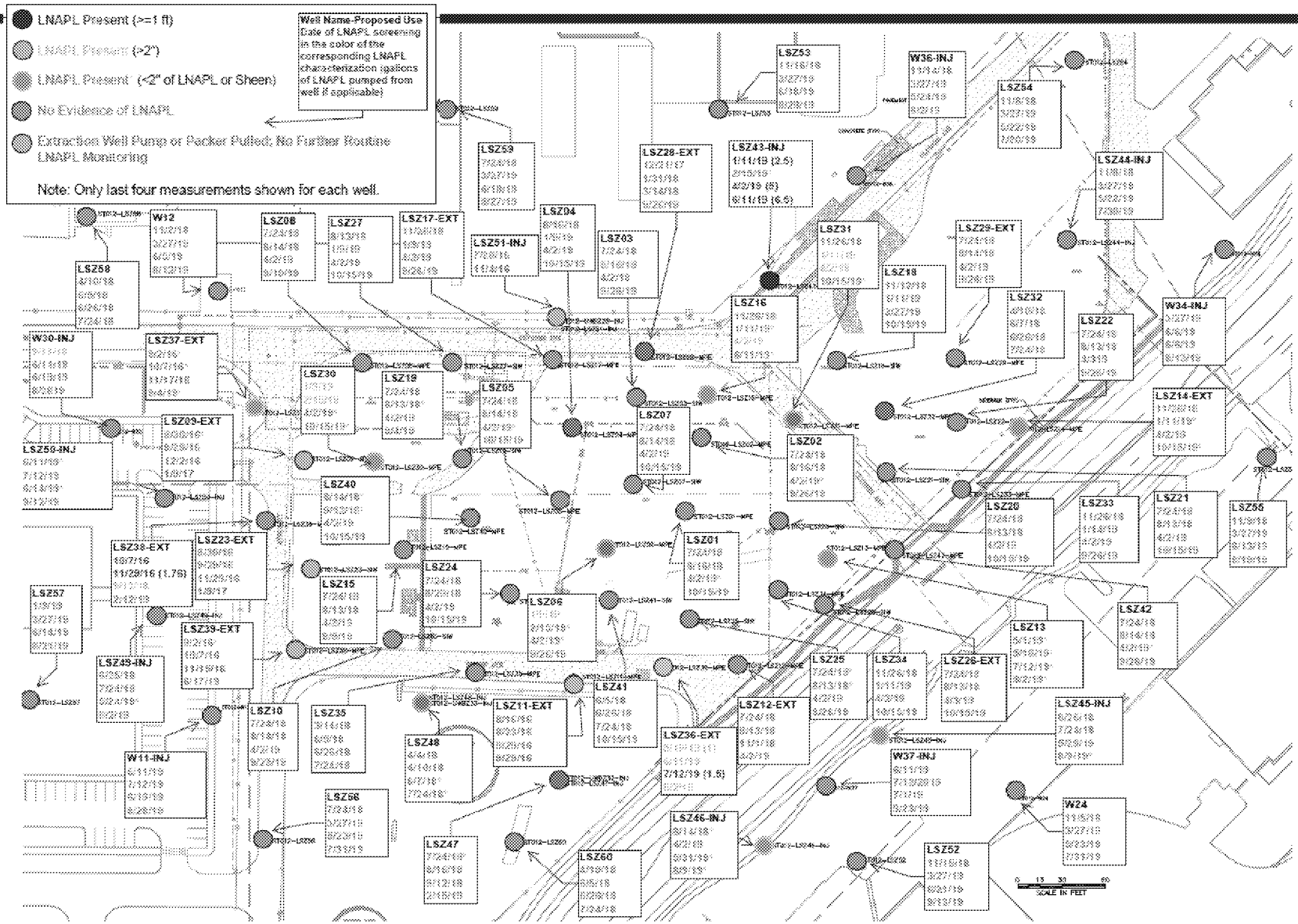
LNAPL Monitoring/Removal Status
Upper Water Bearing Zone



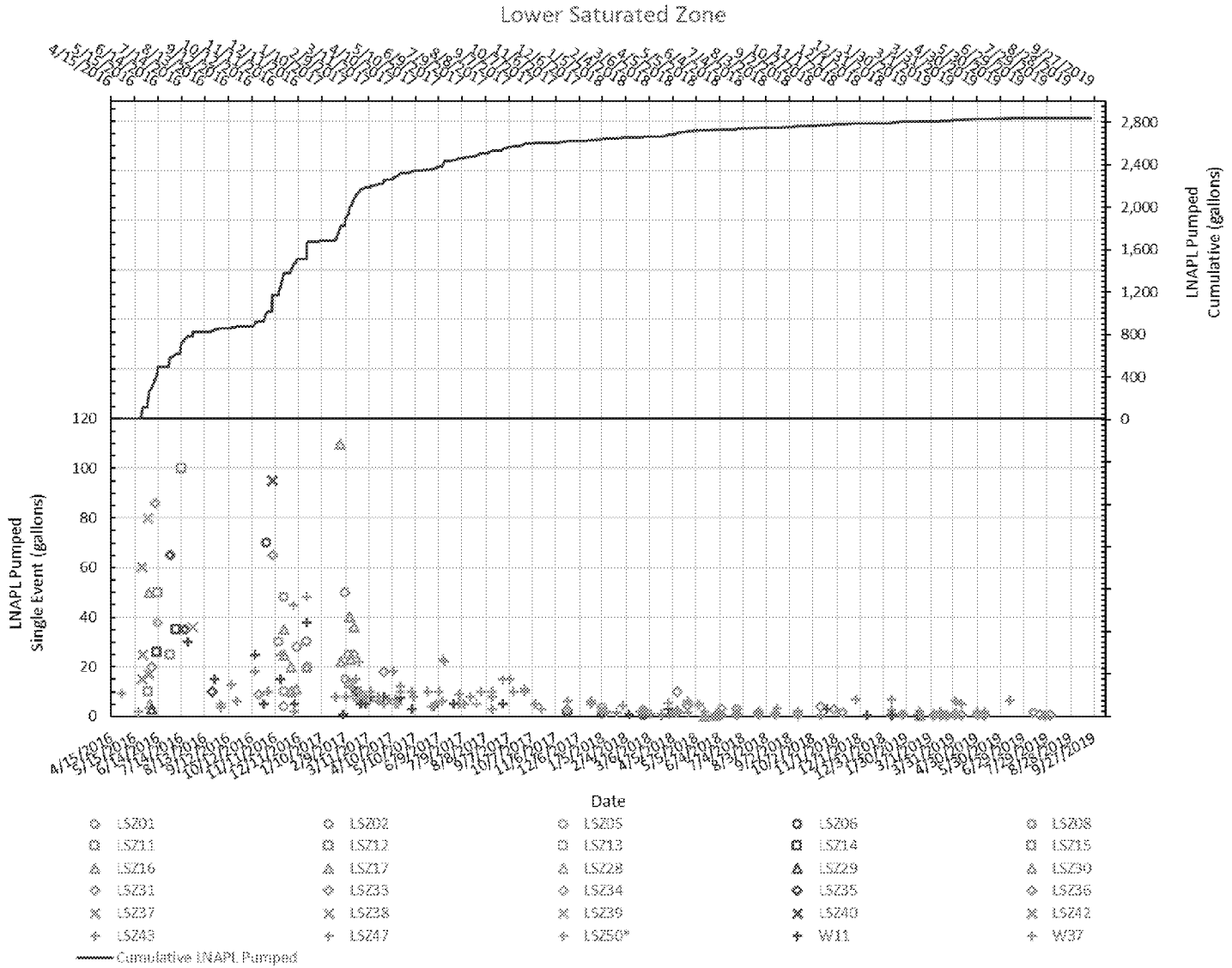
LNAPL Monitoring/Removal Status
Upper Water Bearing Zone



LNAPL Monitoring/Removal Status
Lower Saturated Zone

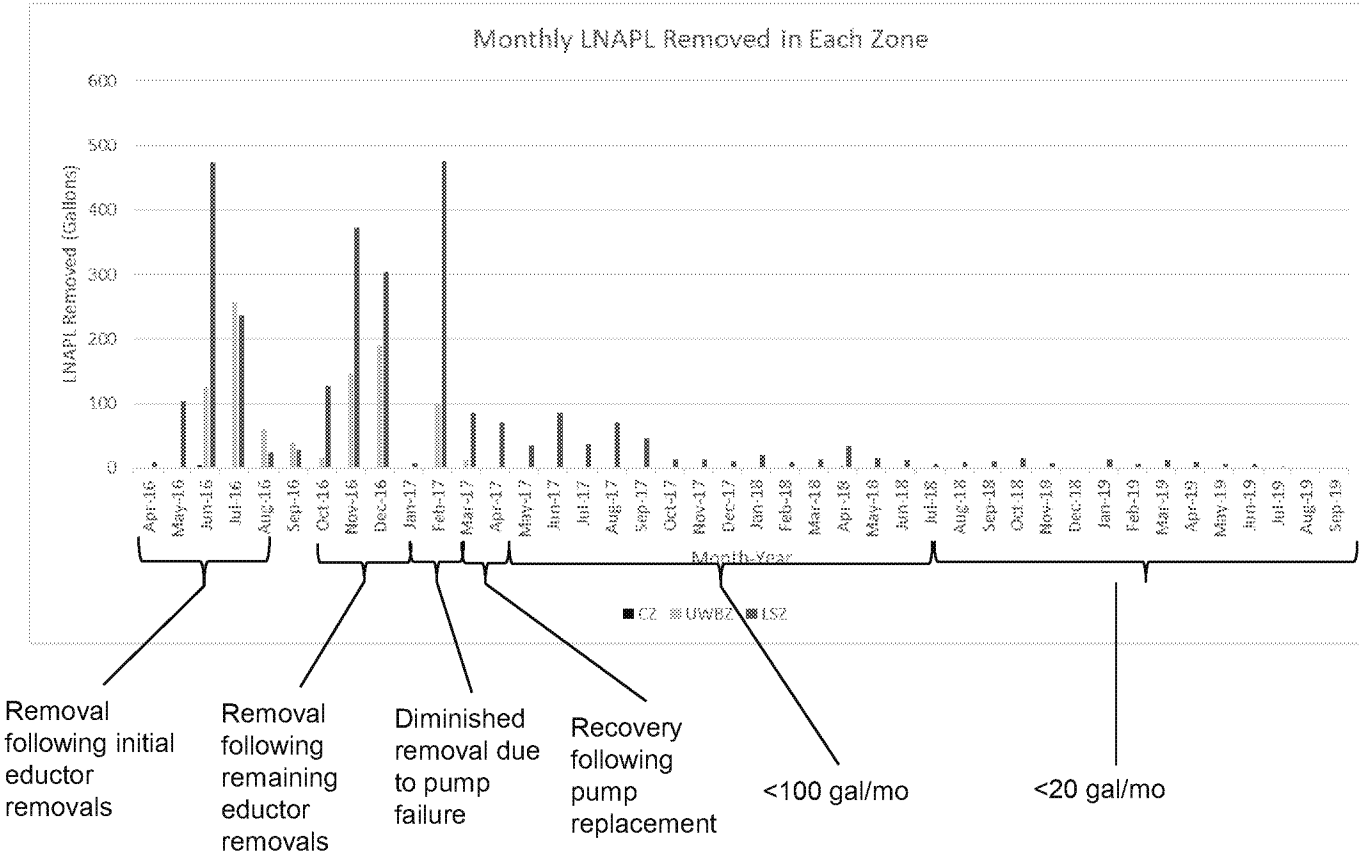


LNAPL Monitoring/Removal
Lower Saturated Zone



ST012 LNAPL Removal Summary

- **CZ – 7 gallons of LNAPL removed. None since Nov 2016**
- **UWBZ - 963 gallons of LNAPL removed. None since Apr update.**
- **LSZ - 2,844 gallons of LNAPL removed. None removed since Sept update. (LNAPL was removed from LSZ43 recently [after the data period of this update])**

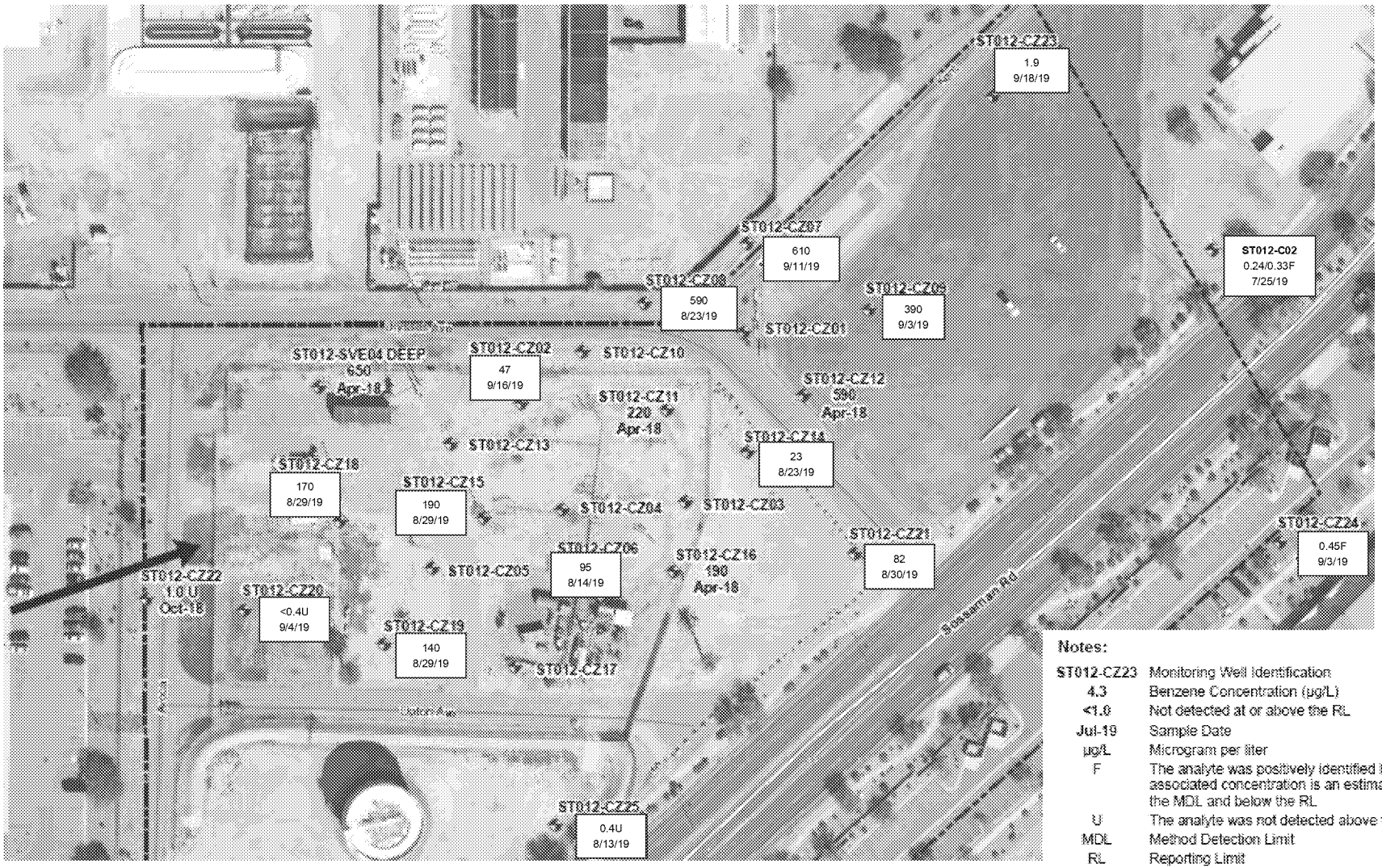


Preliminary Third Quarter Groundwater Sampling Results

Sampling Summary

- **Sampling included:**
  - Extraction Wells
  - Injection Wells (where injections took place)
  - Monitoring Wells (in areas where injections took place)
  - Perimeter Wells
- **General Observations**
  - Benzene at perimeter well UWBZ38 decreased to 3.2 µg/L
  - Benzene concentration greater than 500 µg/L in a limited area in CZ
  - Sulfate distribution expanding to target treatment areas

Site ST012 Benzene (µg/L) in CZ

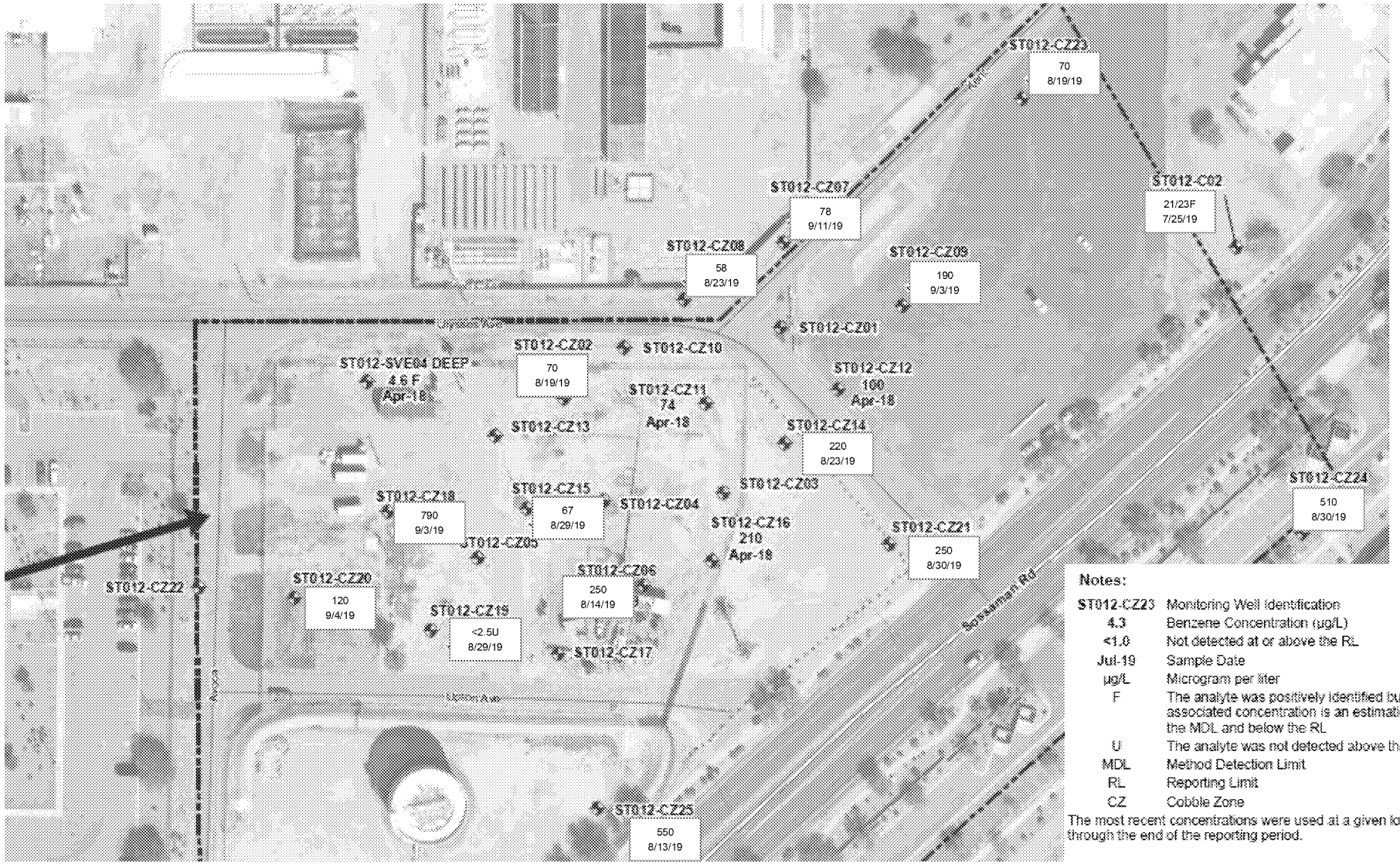


Notes:

ST012-CZ23	Monitoring Well Identification
4.3	Benzene Concentration (µg/L)
<1.0	Not detected at or above the RL
Jul-19	Sample Date
µg/L	Microgram per liter
F	The analyte was positively identified but the associated concentration is an estimation above the MDL and below the RL
U	The analyte was not detected above the RL
MDL	Method Detection Limit
RL	Reporting Limit
CZ	Cobble Zone

The most recent concentration was used at a given location through the end of the reporting period.

Site ST012 Sulfate (mg/L) in CZ

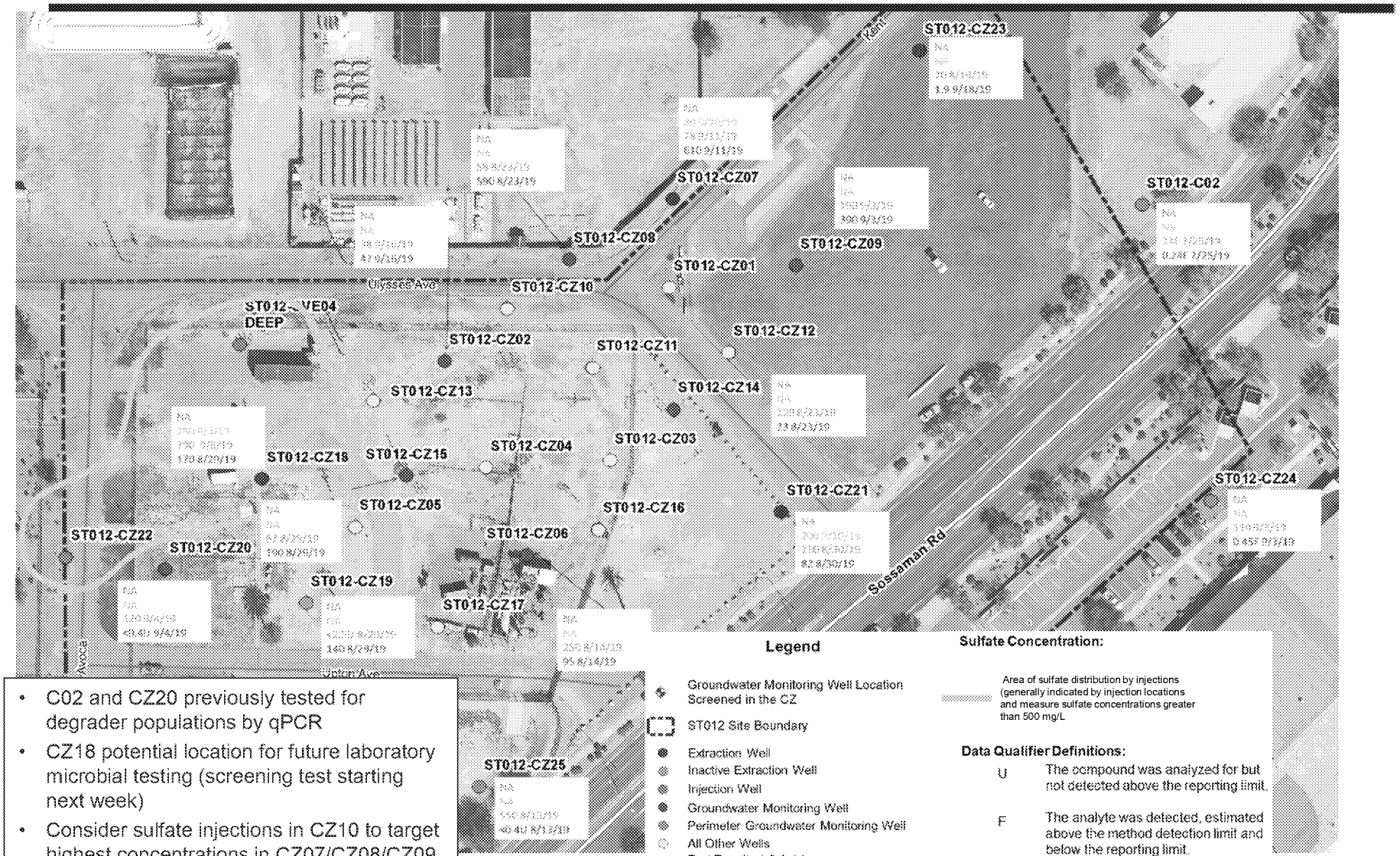


Notes:

ST012-CZ23	Monitoring Well Identification
4.3	Benzene Concentration (µg/L)
<1.0	Not detected at or above the RL
Jul-19	Sample Date
µg/L	Microgram per liter
F	The analyte was positively identified but the associated concentration is an estimation above the MDL and below the RL
U	The analyte was not detected above the RL
MDL	Method Detection Limit
RL	Reporting Limit
CZ	Cobble Zone

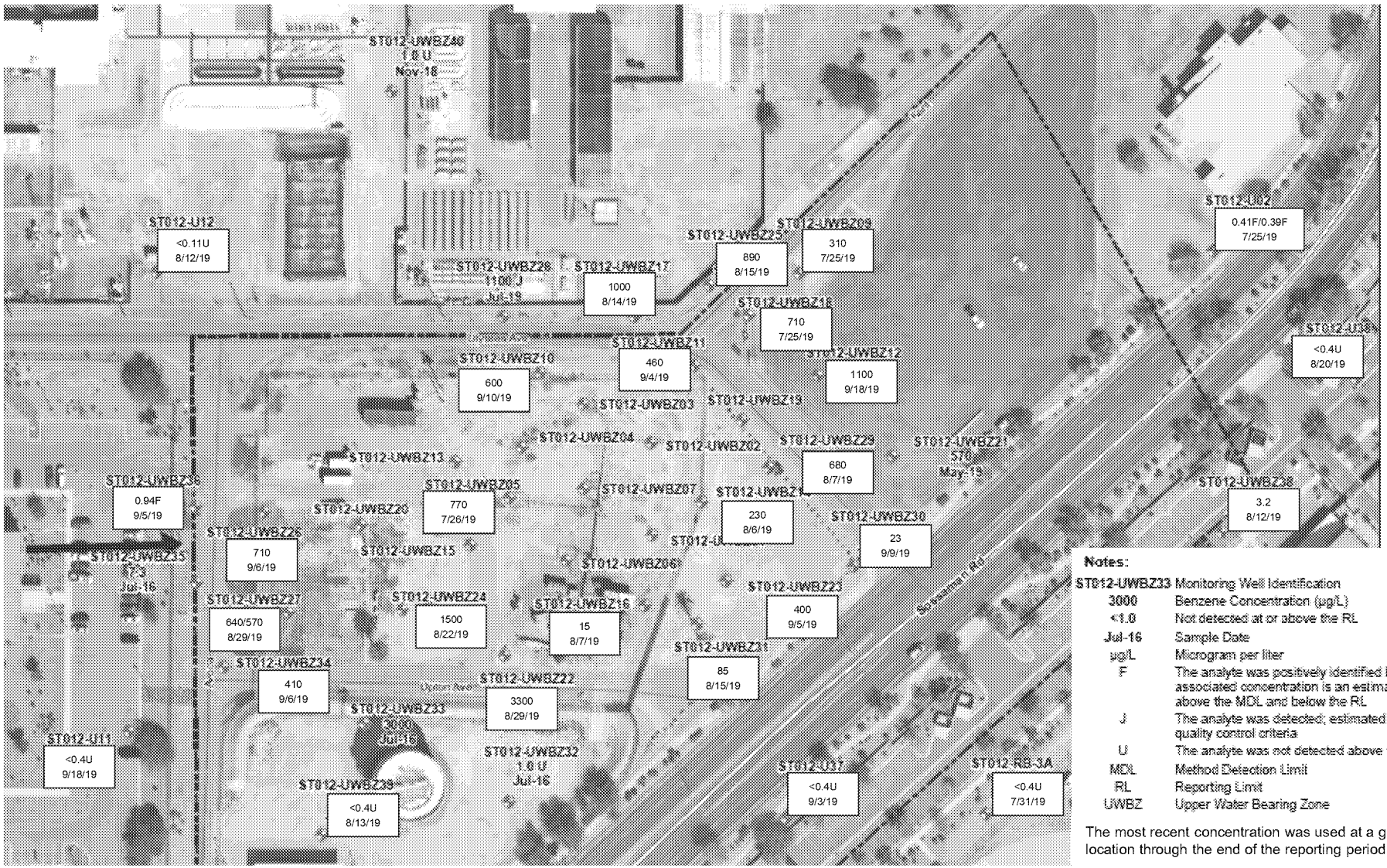
The most recent concentrations were used at a given location through the end of the reporting period.

EBR Treatment Area in CZ



- C02 and CZ20 previously tested for degrader populations by qPCR
- CZ18 potential location for future laboratory microbial testing (screening test starting next week)
- Consider sulfate injections in CZ10 to target highest concentrations in CZ07/CZ08/CZ09 area

Site ST012 Benzene (µg/L) in UWBZ

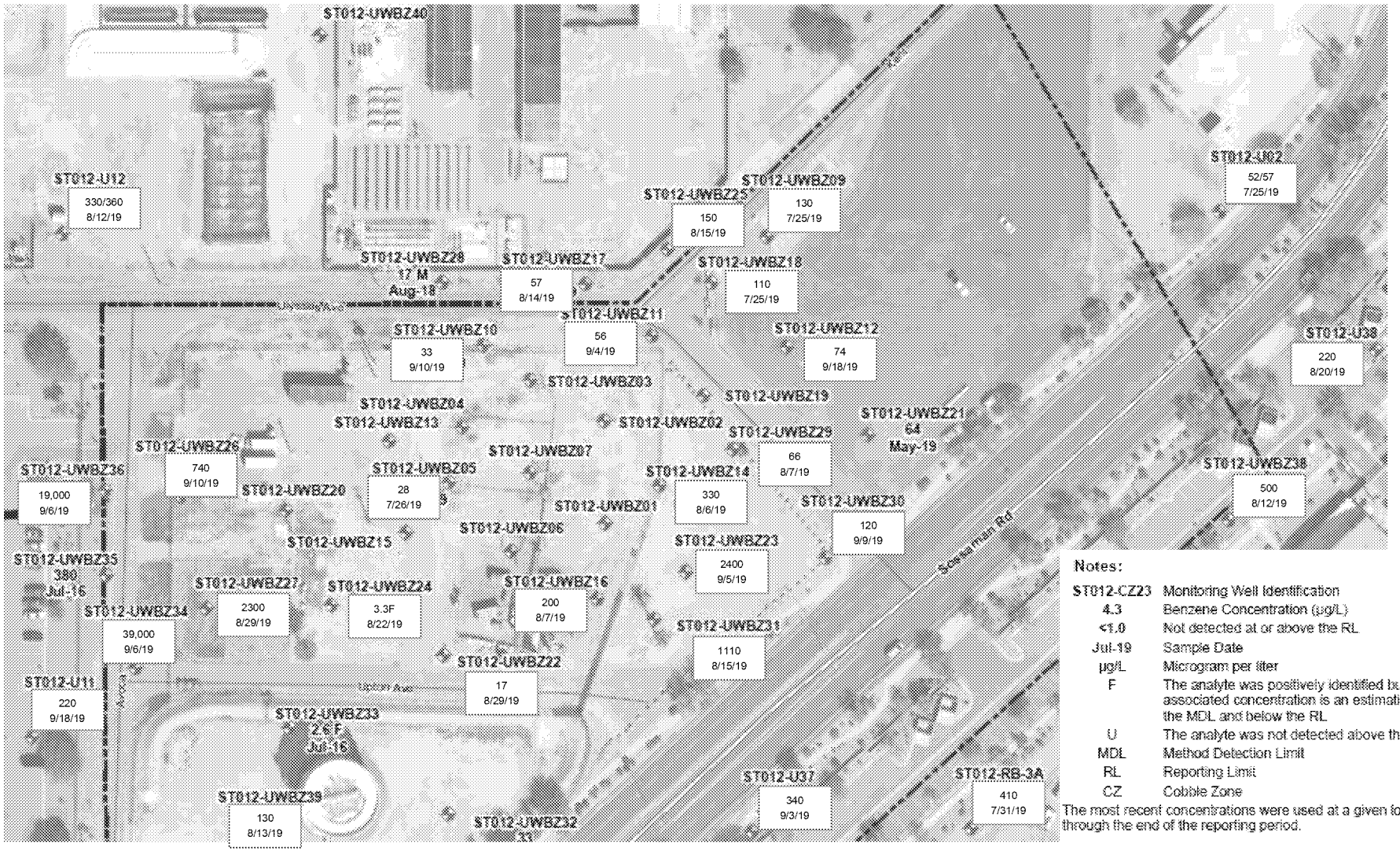


Notes:

ST012-UWBZ33	Monitoring Well Identification
3000	Benzene Concentration (µg/L)
<1.0	Not detected at or above the RL
Jul-16	Sample Date
µg/L	Microgram per liter
F	The analyte was positively identified but the associated concentration is an estimation above the MDL and below the RL
J	The analyte was detected; estimated due to quality control criteria
U	The analyte was not detected above the RL
MDL	Method Detection Limit
RL	Reporting Limit
UWBZ	Upper Water Bearing Zone

The most recent concentration was used at a given location through the end of the reporting period.

Site ST012 Sulfate (mg/L) in UWBZ



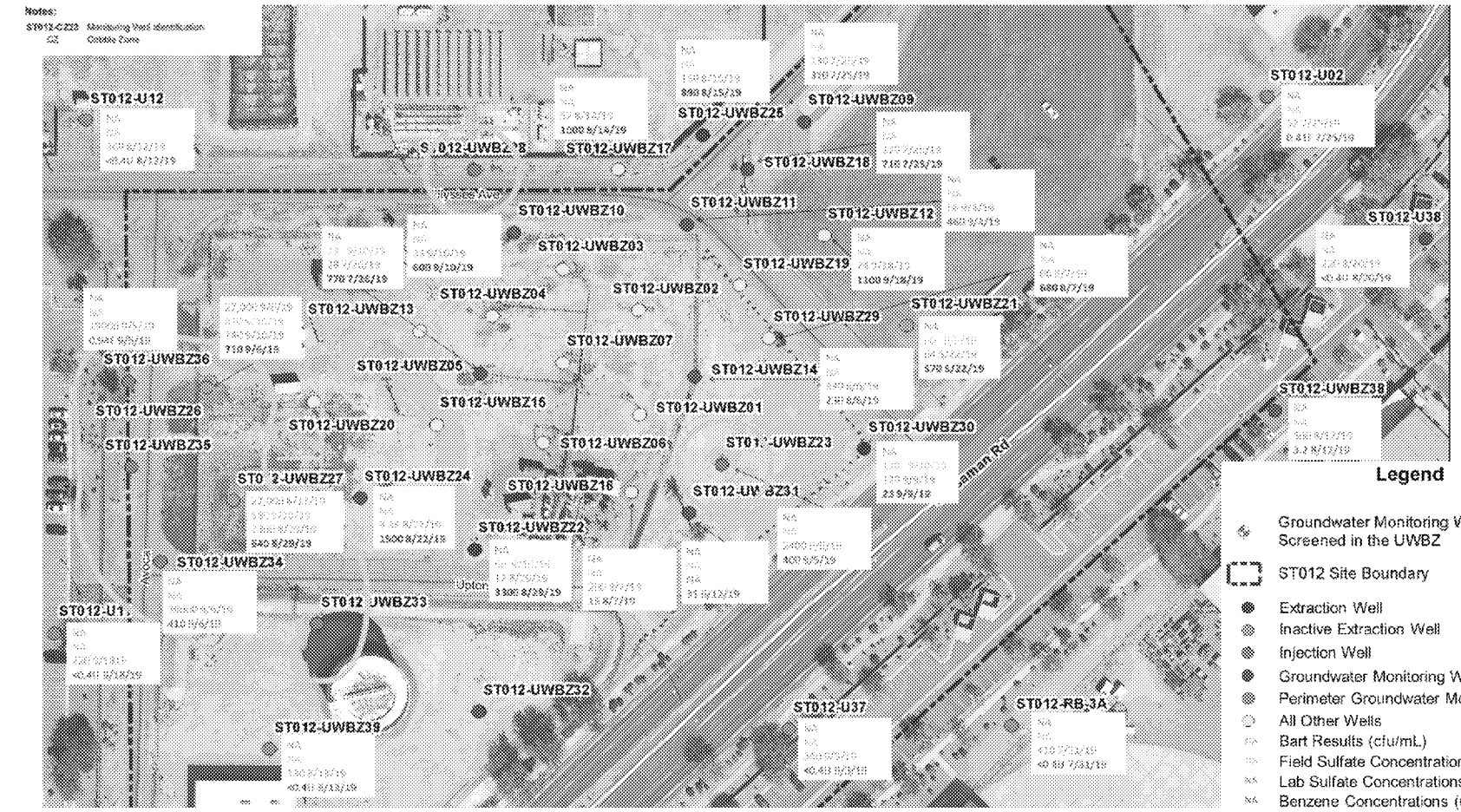
Notes:

ST012-CZ23	Monitoring Well Identification
4.3	Benzene Concentration (µg/L)
<1.0	Not detected at or above the RL
Jul-19	Sample Date
µg/L	Microgram per liter
F	The analyte was positively identified but the associated concentration is an estimation above the MDL and below the RL
U	The analyte was not detected above the RL
MDL	Method Detection Limit
RL	Reporting Limit
CZ	Cobble Zone

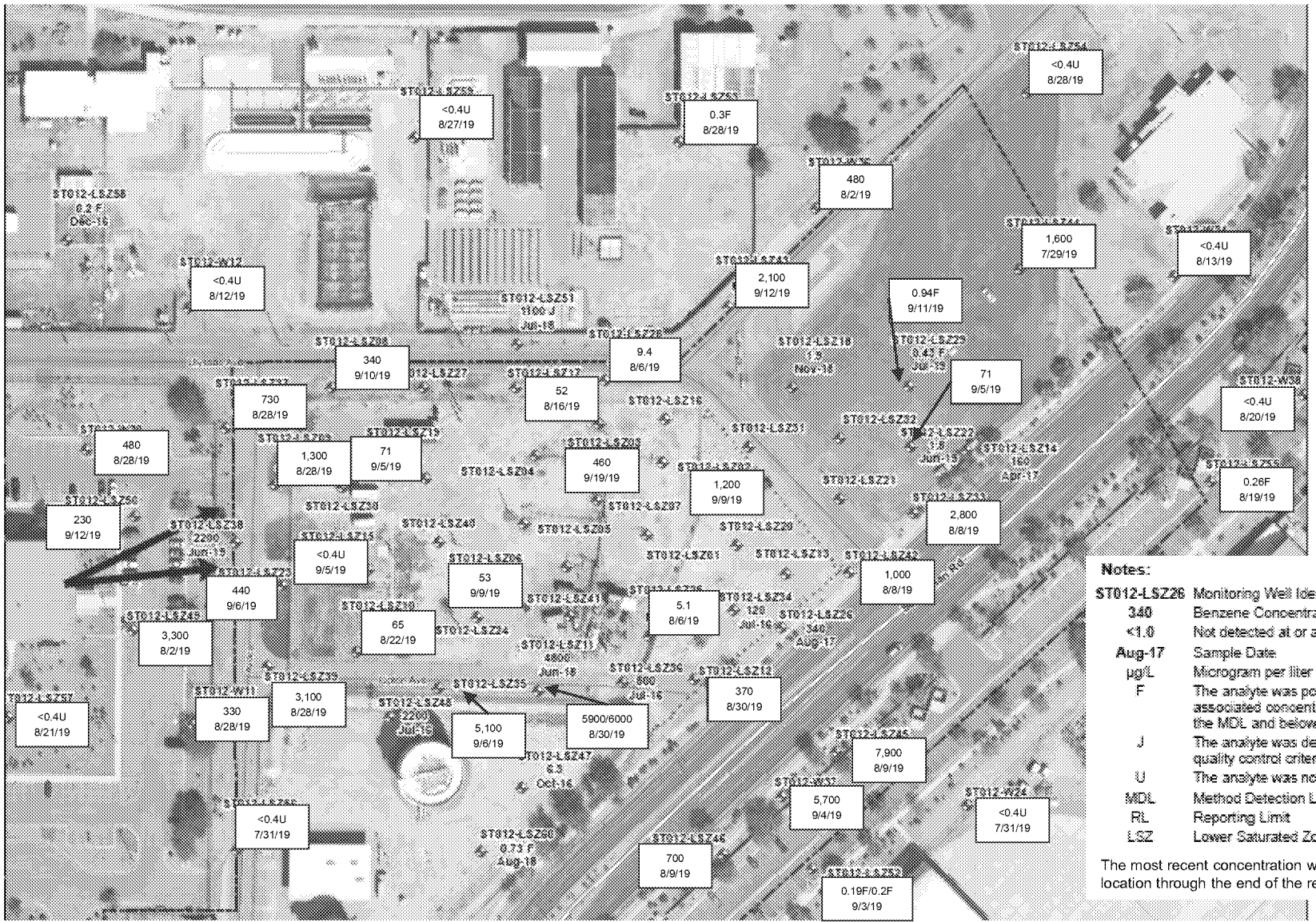
The most recent concentrations were used at a given location through the end of the reporting period.

EBR Treatment Areas in UWBZ

- Sulfate in UWBZ21 recently increased
- UWBZ24 and UWBZ31 previously tested for degrader populations by qPCR
- UWBZ26 and UWBZ27 potential location for future laboratory microbial testing



Site ST012 Benzene (mg/L) in LSZ

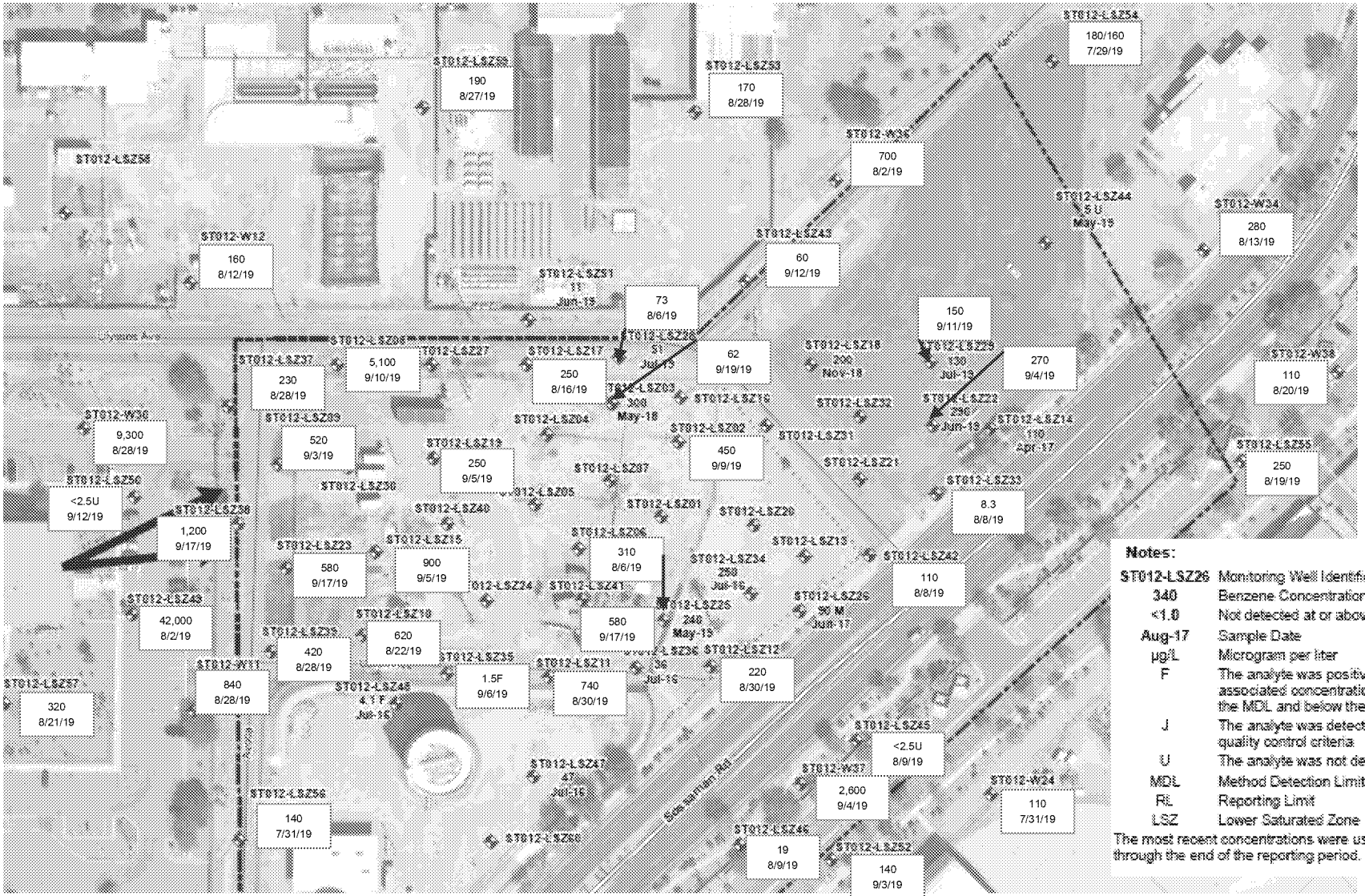


Notes:

ST012-LSZ26	Monitoring Well Identification
340	Benzene Concentration (µg/L)
<1.0	Not detected at or above the RL
Aug-17	Sample Date
µg/L	Microgram per liter
F	The analyte was positively identified but the associated concentration is an estimation above the MDL and below the RL
J	The analyte was detected: estimated due to quality control criteria
U	The analyte was not detected above the RL
MDL	Method Detection Limit
RL	Reporting Limit
LSZ	Lower Saturated Zone

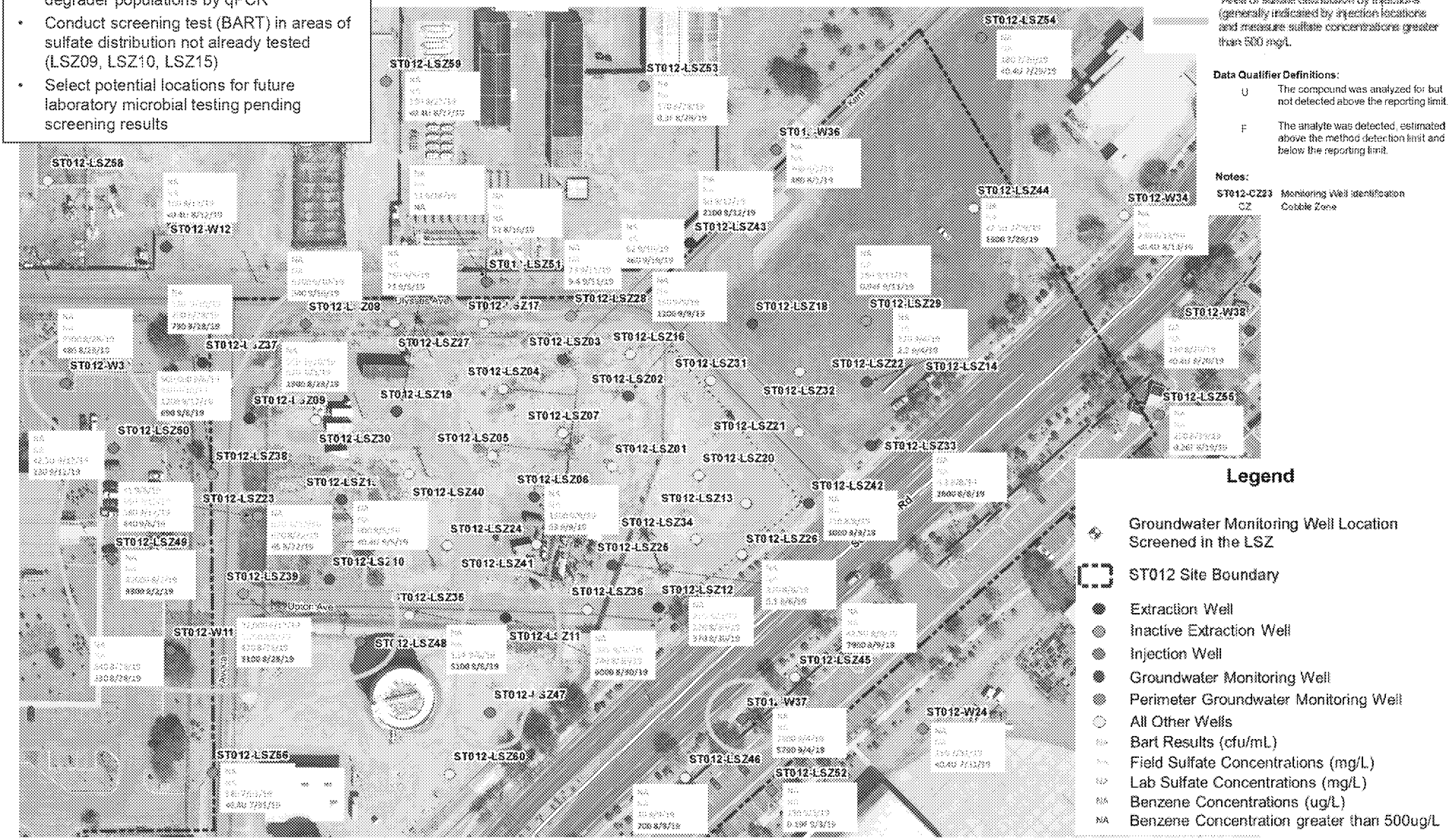
The most recent concentration was used at a given location through the end of the reporting period.

Site ST012 Sulfate (mg/L) in LSZ



EBR Treatment Areas in LSZ

- LSZ10 and LSZ42 previously tested for degrader populations by qPCR
- Conduct screening test (BART) in areas of sulfate distribution not already tested (LSZ09, LSZ10, LSZ15)
- Select potential locations for future laboratory microbial testing pending screening results



Pilot Study Injection/Extraction Update

Site ST012 Extraction System Performance

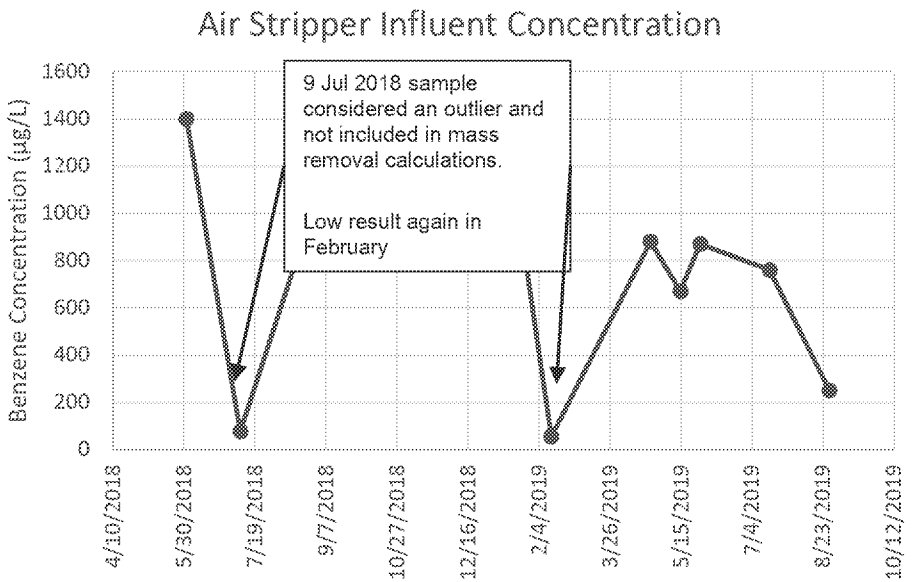
Extraction Well	Calculated Average Extraction Rate in Period gpm	Maximum Temperature °F	Most Recent Temperature °F	Cumulative Extraction gallons	Note
ST012-CZ07	6.8	175	142	3,752,737	
ST012-CZ18	Off	136	126	3,019,867	Extraction stopped due to sulfate presence (Oct 2019)
ST012-CZ19	NA				Eliminated as an extraction well by FVM#7
ST012-CZ21	1.0	150	140	441,689	Totalizer reading suspect
ST012-CZ23	2.4	101	99	283,486	
CZ Subtotal				7,497,780	
ST012-UWBZ21		162	105	591,514	Pneumatic pump, currently down
ST012-UWBZ22	0.3	146	123	447,364	Totalizer reading suspect
ST012-UWBZ25	0.7	168	163	105,987	
ST012-UWBZ26	Off	133	114	2,408,709	Extraction stopped due to sulfate presence (Sep 2019)
ST012-UWBZ27	Off	128	94	130,012	Extraction stopped due to sulfate presence (May 2019)
ST012-UWBZ30		172	96	1,397,235	Pneumatic pump, pumping intermittently, counter suspect
UWBZ Subototal*				6,349,254	
ST012-LSZ09	Off	140	130	2,748,461	Extraction stopped due to sulfate presence (Oct 2019)
ST012-LSZ11	0.5	139	90	3,396,881	Flow meter troubleshooting
ST012-LSZ12	4.5	130	106	1,800,113	Pump down, electrical issue
ST012-LSZ23	Off	113	94	3,638,934	Extraction stopped due to sulfate presence (Aug 2019)
ST012-LSZ28	NA	162		18,899	Eliminated as an extraction well by FVM#7
ST012-LSZ29	NA	>170		17	Eliminated as an extraction well by FVM#7
ST012-LSZ37	9.9	132	88	5,911,776	
ST012-LSZ38	Off	160	90	941,898	Extraction stopped due to sulfate presence (Aug 2019)
ST012-LSZ39	Off	92	78	1,250,933	Extraction stopped due to sulfate presence (May 2019)
ST012-LSZ43	7.7	140	140	407,448	
ST012-UWBZ28/LSZ51		146	128	2,536,868	Extraction stopped (Aug 2019), changed to injection end of subphase 2
LSZ Subtotal*				21,383,795	
Total of Wells	33.8			35,230,828	
Treatment System	36.6			25,906,499	

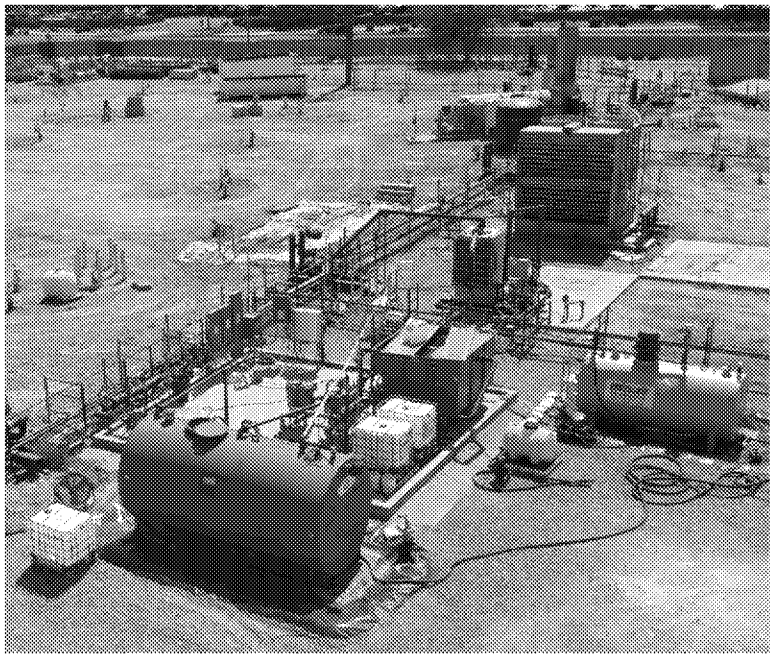
Data is preliminary

* Includes 1/2 of ST012-UWBZ28/LSZ51

Site ST012 Extraction System Performance

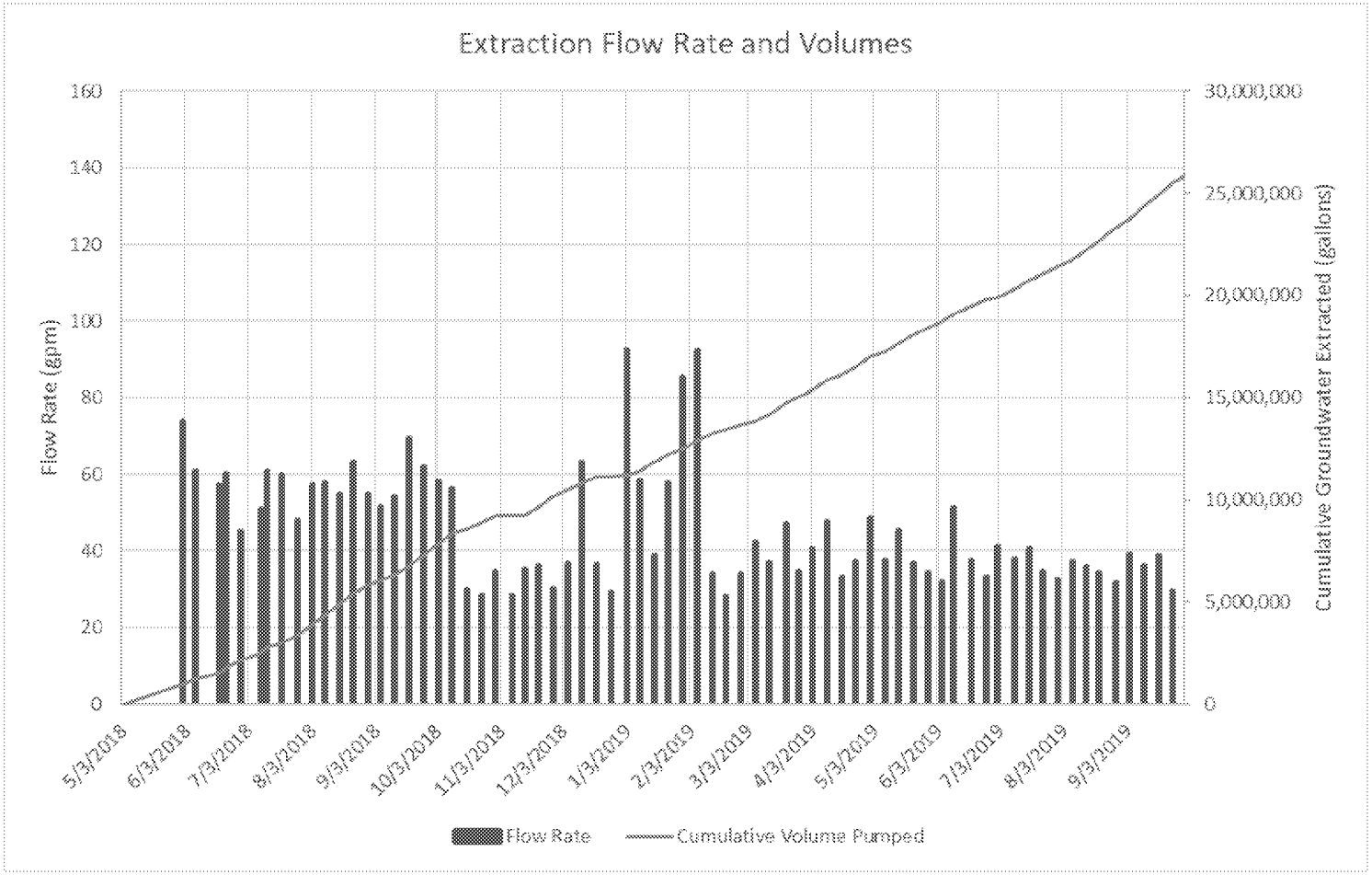
- No LNAPL has been recovered since extraction started up
- All extraction pumps except LSZ12 working
- CZ18, UWBZ21, UWBZ26, UWBZ27, LSZ09, LSZ23, LSZ38, and LSZ39 turned off due to sulfate presence
- Benzene air stripper influent at 250 µg/L for September sample
- CZ23 result 1.9 µg/L in September





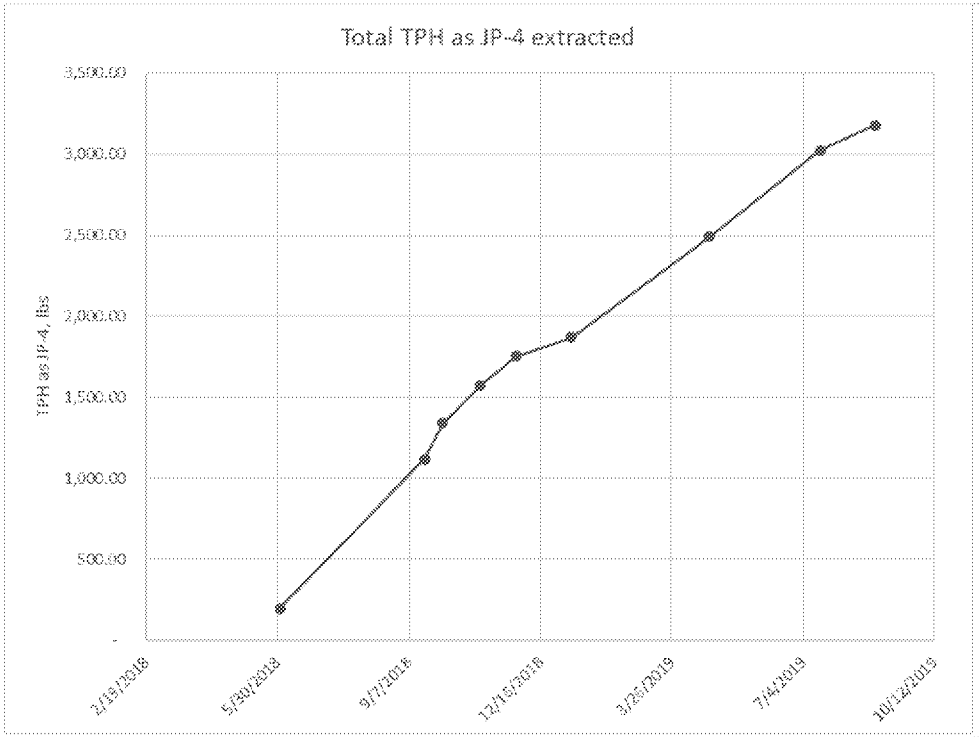
Site ST012 Extraction System Performance

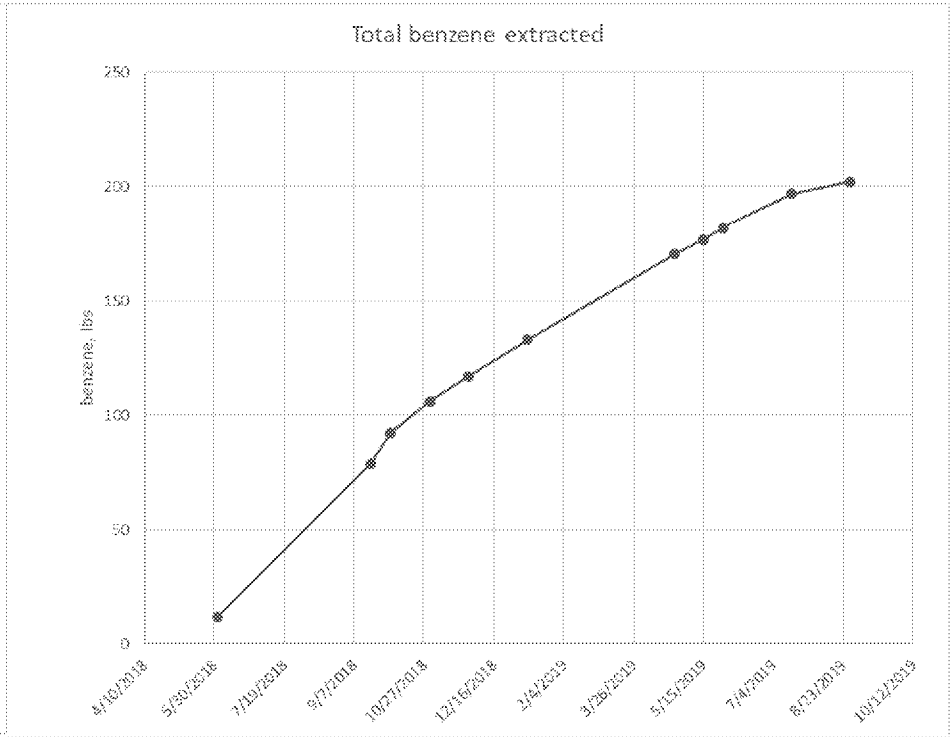
- **Overall Extraction Rates and Cumulative Volume Extracted**
- **Overall Extraction Rates are down due to turning off wells**



Site ST012 Extraction System Performance

- **Estimated Mass Removal by Extraction**

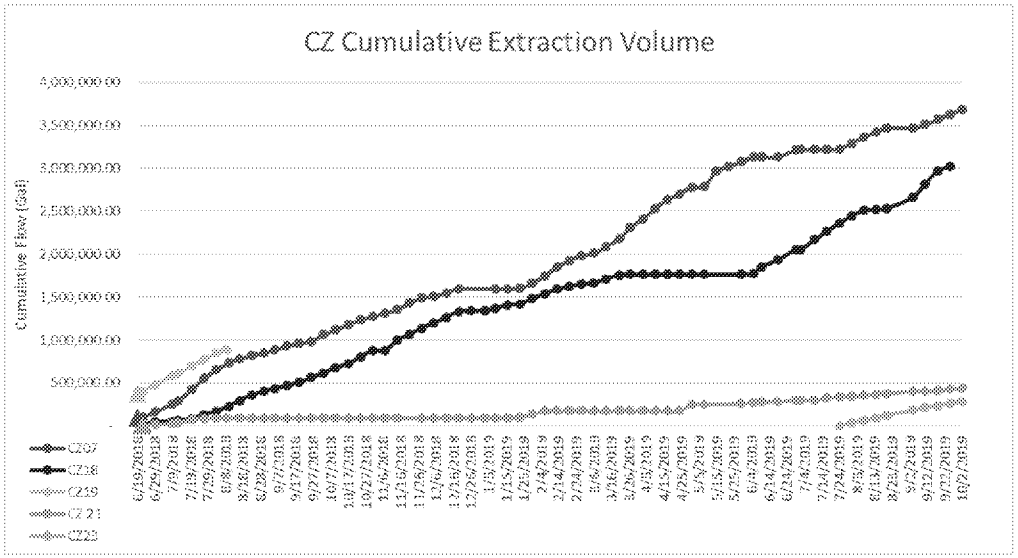




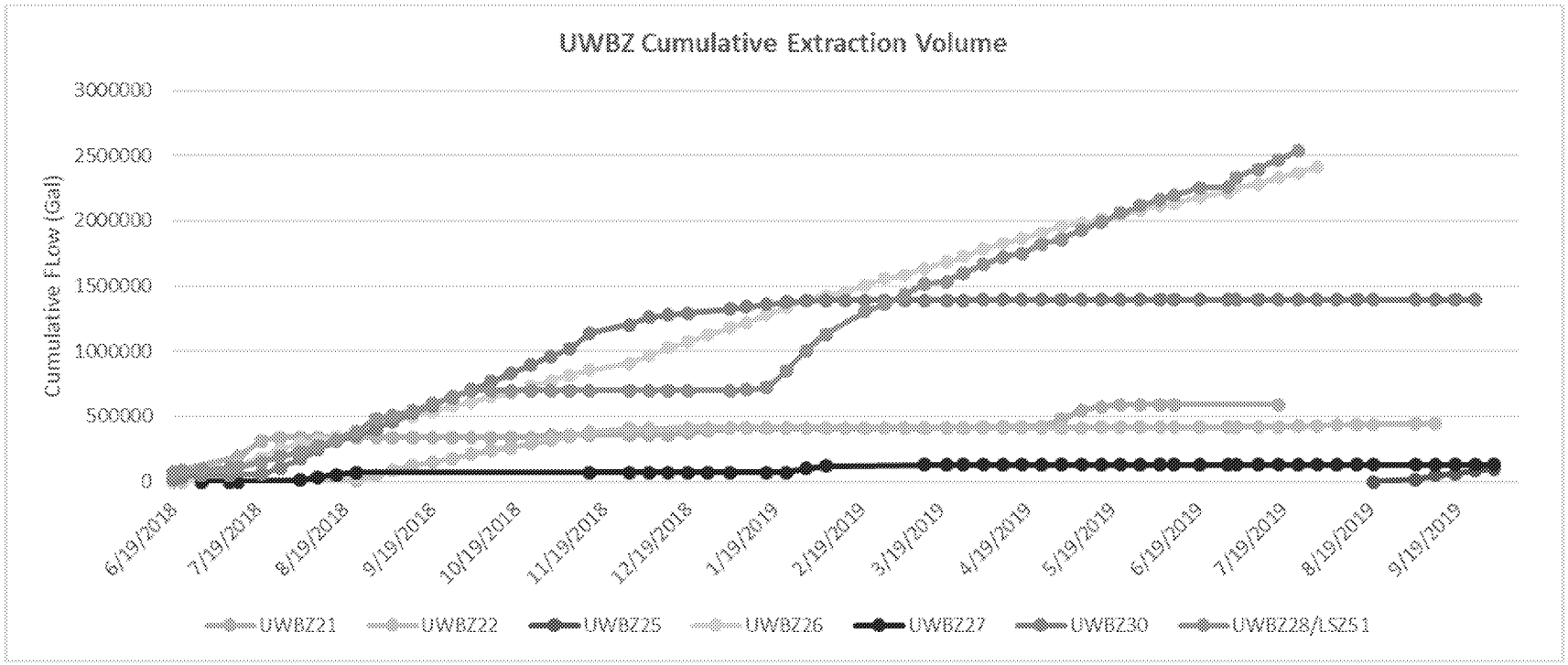
Cumulative Extraction Volume and Analytical Data by Well - Cobble Zone

Well ID	Date Sampled	Benzene Concentration, µg/L
ST012-CZ07 (Start May 2018)	4/30/2018	230
	11/1/2018	600
	2/11/2019	410
	6/18/2019	320
	9/11/2019	610
ST012-CZ18 (Start May 2018 Stop Oct 2019)	4/3/2018	1200
	11/1/2018	260
	2/11/2019	260
	6/14/2019	140
	8/29/2019	170
ST012-CZ19 (Start May 2018 Stop Aug 2018)	5/9/2018	3.1
	6/24/2019	160
	8/29/2019	140
ST012-CZ21 (Start June 2018)	4/12/2018	680
	6/17/2019	91
	8/30/2019	82
ST012-CZ23 (Start Jul 2019)	7/12/2019	4.3
	9/18/2019	1.9

- Most recent baseline and operating (when available) benzene analytical result listed (Aug/Sep 2019 added)



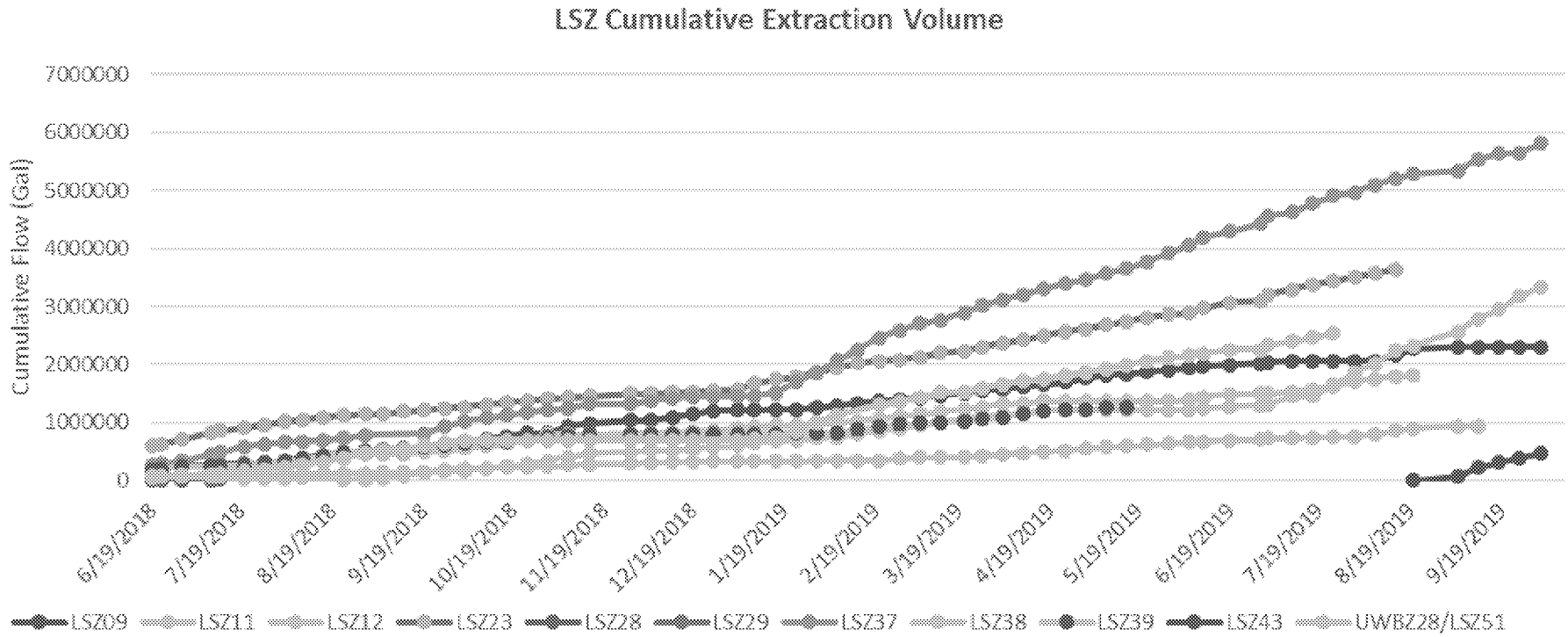
Cumulative Extraction Volume by Well - Upper Water Bearing Zone



Analytical Data by Extraction Well - Upper Water Bearing Zone

Well ID	Date Sampled	Benzene Concentration, µg/L
ST012-UWBZ21 (Start Jun 2018)	8/9/2017	3400
	5/22/2019	570
ST012-UWBZ22 (Start Jun 2018)	5/9/2018	1900
	2/11/2019	2800
	7/11/2019	2300
	8/29/2019	3300
ST012-UWBZ26 (Start May 2018 Stop Sep 2019	4/3/2018	3500
	4/3/2018	3700
	2/12/2019	2900
	6/14/2019	2100
	8/29/2019	3800
	9/6/2019	710
ST012-UWBZ27 (Start May 2018 Stop May 2019)	4/3/2018	1500
	2/12/2019	460
	6/14/2019	350
	8/29/2019	640/570
ST012-UWBZ28/LSZ51 (Start May 2018 Stop Aug 2019)	5/9/2018	1700
	3/25/2019	650
ST012-UWBZ30 (Start Jun 2018)	5/9/2018	6000
	2/13/2019	21
	6/14/2019	840
	9/9/2019	23

Cumulative Extraction Volume by Well
Lower Saturated Zone



Analytical Data by Extraction Well
Lower Saturated Zone

Well ID	Date Sampled	Benzene Concentration, µg/L
ST012-LSZ09 (Start May 2018 Stop Oct 2019)	4/3/2018	2100
	2/12/2019	1000
	6/14/2019	630D
	8/28/2019	1300
ST012-LSZ11 (Start Jun 2018)	5/9/2018	2100
	2/12/2019	3500
	6/18/2019	4800D
	8/30/2019	5900/6000
ST012-LSZ12 (Start Jun 2018)	5/9/2018	1400
	11/1/2018	420
	2/12/2019	470
	6/19/2019	220
	8/30/2019	370
ST012-LSZ23 (Start May 2018 Stop Aug 2019)	4/3/2018	1600
	2/12/2019	790
	6/14/2019	950
	8/28/2019	160
	9/6/2019	440
ST012-LSZ37 (Start May 2018)	4/12/2018	2700
	2/12/2019	460
	6/14/2019	540
	8/28/2019	730
ST012-LSZ38 (Start May 2018 Stop Aug 2018)	4/3/2018	3000
	11/1/2018	1300
	2/12/2019	2100
	6/14/2019	2200
	8/28/2019	1800
	9/6/2019	690

Analytical Data by Extraction Well Lower Saturated Zone (Cont.)

Well ID	Date Sampled	Benzene Concentration, µg/L
ST012-LSZ39 (Start May 2018 Stop May 2019)	2/12/2019	130
	6/17/2019	4500
	8/28/2019	3100
ST012-LSZ43 (Start Aug 2019)	5/24/2019	320
	9/12/2019	2100
ST012-UWBZ28/LSZ51 (Start May 2018 Stop Aug 2019)	5/9/2018	1700
	3/25/2019	650

Site ST012 Injection Progress

- **Injections continued in Sept**
- **321 tons injected through 30 Sept 2019 (322 tons planned through subphase 2)**
- **23.6 tons injected since last update**
- **Subphase 3 injections ongoing (started on 30 Sep 2019)**

Date	Volume (gallons)	Number of Bags of Sulfate Added	Calculated Na2SO4 Conc. g/L	Calculated SO4 Conc. g/L	Locations(% of volume if multiple locations)
9/5/2019	---	---			LSZ51 (2.3 tons)
9/23/2019	8000	4	113	76	UWBZ28 (1.8 tons)
9/24/2019	8000	4	113	76	UWBZ28 (3.8 tons)
9/25/2019	8000	4	113	76	UWBZ28 (4.2 tons)
9/26/2019	6000	3	113	76	UWBZ28 (3.8 tons)
9/27/2019	4000	2	113	76	UWBZ28 (5.0 tons)
9/30/2019	8000	4	113	76	UWBZ33 (2.7 tons)

Site ST012 Sulfate Field Screening

	Sulfate Concentration (mg/L)																								
Date	CZ02	CZ18	CZ07	CZ20	CZ21	UWBZ15	UWBZ21	UWBZ22	UWBZ24	UWBZ26	UWBZ27	WBZ28/LSZ	UWBZ30	LSZ09	LSZ10	LSZ11	LSZ12	LSZ23	LSZ35	LSZ37	LSZ38	LSZ39	LSZ43	LSZ47
12/17/2018	---	---	---	---	---	---	---	*30*	---	---	*15*	---	---	---	---	---	---	---	---	---	---	---	---	---
12/21/2018	---	---	---	---	---	---	---	*45*	---	---	*30*	---	---	---	---	---	---	---	---	---	---	---	---	---
12/26/2018	---	---	---	---	---	---	---	146	---	---	>150	---	---	---	---	---	---	---	---	---	---	---	---	---
1/15/2019	---	---	---	---	---	---	---	45	---	---	71	---	---	---	---	---	---	---	---	---	---	---	---	---
1/18/2019	---	---	---	---	---	---	---	40	---	---	57	---	---	---	---	---	---	---	---	---	---	---	---	---
1/21/2019	---	---	---	---	---	---	---	38	---	---	66	---	---	---	---	---	---	---	---	---	---	---	---	---
1/24/2019	---	---	---	---	---	---	---	41	---	---	48	---	---	---	---	---	---	---	---	---	---	---	---	---
1/25/2019	---	---	---	---	---	---	---	250	---	---	50	---	---	---	---	---	---	---	---	---	---	---	---	---
1/28/2019	---	---	---	---	---	---	---	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1/29/2019	---	---	---	---	---	---	---	35	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1/31/2019	---	---	---	---	---	---	---	89	---	22	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/1/2019	---	---	---	---	---	---	---	57	---	9	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/5/2019	---	---	---	---	---	---	---	37	---	25	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/11/2019	---	---	---	---	---	---	---	37	---	10	54	---	---	---	---	---	---	---	---	---	---	---	---	---
2/15/2019	---	---	---	---	---	---	---	36	---	12	48	---	---	---	---	---	---	---	---	---	---	---	---	---
2/18/2019	---	---	---	---	---	---	---	40	---	16	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/22/2019	---	---	---	---	---	---	---	---	---	22	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2/25/2019	---	---	---	---	---	---	---	---	---	38	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/1/2019	---	---	---	---	---	---	---	---	---	66	94	---	---	---	---	---	---	---	---	---	---	---	---	---
3/4/2019	---	---	---	---	---	---	---	---	---	67	112	---	---	---	---	---	---	---	---	---	---	---	---	---
3/8/2019	---	---	---	---	---	---	---	---	---	104	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/11/2019	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3/15/2019	---	---	---	---	---	---	---	---	---	101	119	---	---	---	---	---	---	---	---	---	---	---	---	---
3/20/2019	---	---	---	---	---	---	---	---	---	---	97	---	---	---	---	---	---	---	---	---	---	---	---	---
3/29/2019	---	---	---	---	---	---	---	---	---	99	350	---	---	---	---	---	---	---	---	---	---	350	---	---
4/8/2019	---	---	---	---	---	---	---	---	---	81	297	---	---	---	---	---	---	---	---	---	---	153	---	---
4/16/2019	---	---	---	---	---	---	---	---	---	150	520	---	---	---	---	---	---	---	---	---	---	210	---	---
4/23/2019	---	---	---	---	---	---	---	---	---	---	1240	6	---	---	---	---	---	---	---	---	20	1230	---	---
4/26/2019	---	---	---	---	---	---	---	---	---	---	570	18	---	---	---	---	---	---	---	---	70	1230	---	---
5/1/2019	---	---	---	---	---	---	---	---	---	---	1110	12	---	---	---	---	---	---	---	---	77	1180	---	630
5/8/2019	---	---	---	---	26	---	---	---	---	---	720	---	---	---	---	---	---	---	---	---	---	1440	---	---
5/13/2019	1	---	11	0	---	4	7	---	1	17	---	1	10	20	90	4	21	---	59	---	12	---	---	---
5/15/2019	---	---	---	---	---	---	---	---	---	---	1130	---	---	---	---	---	---	---	---	---	---	1460	---	---
5/22/2019	---	---	---	---	---	---	---	---	---	---	1450	0	---	---	---	160	---	---	---	170	---	1430	---	---
5/29/2019	10	---	60	0	230	10	30	---	10	270	2000	20	110	1000	1810	90	30	610	0	200	130	1430	---	---
6/5/2019	---	---	80	---	280	180	---	0	---	160	2240	---	180	320	830	100	---	630	0	290	100	---	---	0
6/11/2019	0	---	---	0	230	---	30	---	0	280	---	0	120	320	830	---	0	740	---	410	150	1410	---	---
6/18/2019	---	---	110	---	250	10	---	20	---	280	1680	---	120	570	1620	250	---	670	10	400	240	---	---	-
6/25/2019	100	---	---	80	240	---	610	---	0	370	---	0	110	450	860	---	10	630	---	200	90	720	---	---
7/2/2019	---	---	140	---	180	50	---	270	---	650	1270	---	150	470	920	230	---	540	40	370	130	---	---	0
7/9/2019	100	---	---	510	600	---	540	---	0	640	---	10	150	450	870	---	200	750	---	420	350	1330	---	---
7/16/2019	---	---	10	---	250	0	---	0	---	640	290	---	100	220	820	280	---	630	10	430	430	---	---	0
7/23/2019	90	1000	---	430	210	---	480	---	0	630	---	10	270	200	790	---	200	590	---	390	410	1350	---	---
7/30/2019	---	--	10	---	230	60	---	0	---	630	900	---	240	310	740	170	---	600	40	400	400	---	---	0
8/6/2019	90	480	---	450	270	---	500	---	0	800	---	off	250	660	780	---	200	760	---	290	530	1380	---	---
8/13/2019	---	--	0	---	200	40	---	0	---	580	800	---	110	300	700	200	---	780	---	300	560	---	---	0
8/20/2019	70	600	---	480	240	---	490	---	0	940	---	off	100	650	960	---	190	940	---	250	610	---	---	---
8/27/2019	---	--	off	---	230	10	---	10	---	1370	900	---	130	560	720	340	---	890	---	290	780	---	---	0
9/3/2019	0	280	---	0	210	---	60	---	0	710	---	off	110	380	670	---	210	810	---	200	1000	---	---	---
9/10/2019	---	--		---	200	13	---	60	---	810	980	---	110	380	680	300	---	650	---	210	980	---	---	0
9/17/2019	10	1030	---	0	250	---	1000	---	0	470	---	off	100	510	590	---	280	680	---	360	870	---	---	---
9/24/2019	---	--	100	---	240	12	---	10	---	890	940	---	100	490	790	330	---	900	---	350	870	---	20	0
10/1/2019	0	760	---	0	220	---	1000	---	0	830	---	off	90	670	600	---	300	550	---	300	850	---	20	---
10/8/2019	---	--	40	---	260	30	---	0	---	830	600	---	80	710	570	400	---	920	---	340	1000	---	off	0

CZ07 Screening location is an extraction location

CZ20 Screening location is a monitoring well

CZ18, UWBZ26, UWBZ27, LSZ09, LSZ23, LSZ38 and LSZ39 extraction shut down

Site ST012 Sulfate Field Screening

- **LSZ09, UWBZ21, and CZ18 – recently shut down based on sulfate screening. Perform screening test for SRB and time zero sampling.**
- **LSZ37 – had indications of sulfate from injections but recently decreasing**

Site ST012 Path Forward Oct-Nov

- Continued SVE operation
- Continue pump repairs
- Pilot Study Implementation
  - Continue mixing sulfate batches and inject according to plan (FVM7) Phase 1 subphase 3 injections with the modifications previously presented
  - Perform SRB screening (BART) test and time zero sampling at recently shut down extraction wells and select monitoring wells

2019 BCT MEETINGS/CONFERENCE CALLS SCHEDULE DELIVERABLE TRACKING

BCT Conference Call

17 October 2019

BCT GENERAL UPDATE AND ACTION ITEMS

BCT Conference Call

17 October 2019